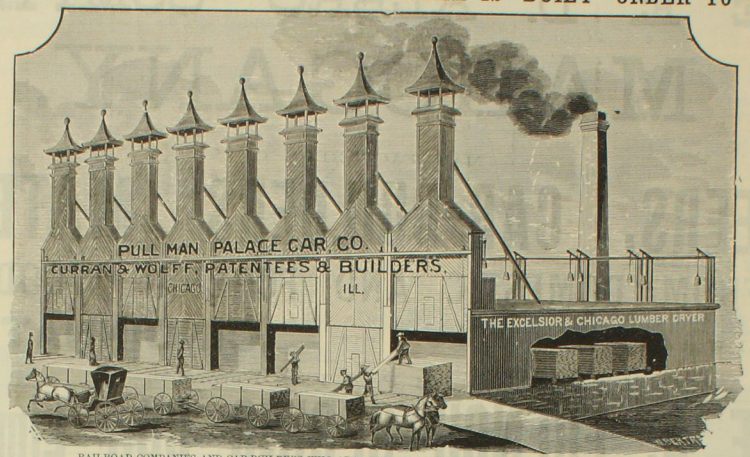
NATIONAL CAR BUILDER

VOLUME XVI. NUMBER 5. DEVOTED TO THE INTERESTS OF RAILWAY ROLLING STOCK. $1.00 PER ANNUM SINGLE NUMBERS TEN CENTS.

NEW YORK: Morse Building, 140 Nassau St. MAY, 1885. Entered at the Post Office at New York N. Y., as Mail Matter of the Second Class. CHICAGO: 144 N. Clark Street.

THE EXCELSIOR AND CHICAGO LUMBER DRYER IS BUILT UNDER 16 PATENTS.

PAYS FOR ITSELF EVERY YEAR. Storing Capacity, 40,000 Feet Inch Lumber.



DRYING 8,000 FEET PINE LUMBER EVERY 24 HOURS.

RAILROAD COMPANIES AND CAR-BUILDERS WHO ARE USING THE EXCELSIOR AND CHICAGO LUMBER DRYER:

	Kilns.		Kilns.
C. & N. W. R. R. Co., Chicago	2	C., B. & Q. R. R. Co., Aurora, Ill	2
B. & M. R. R. Co., Omaha, Neb	1	N. Y., O. & Western R. R. Co., Middletown, N. Y	1
Norfolk & Western R. R. Co., Roanoke, Va	2	Louisville & Nashville R. R. Co., Louisville	2
Wilmington & Weldon R. R. Co., Wilmington, N. C	2	Pullman Palace Car Co., Chicago	8
Denver & Rio Grande R. R., Denver, Col	2	Wells & French Co., Car Builders, Chicago	3
A., T. & S. Fe R. R., Topeka, Kan	2	Michigan Car Co., Car Builders, Detroit, Mich	2
Flint & Pere Marquette R. R. Co., Saginaw, Mich	1	Ohio Falls Car Co., Car-Builders, Jeffersonville, Ind	2
C., M. & St. Paul R. R. Co., Minneapolis, Minn	2	Barney & Smith Mfg. Co., Car-Builders, Dayton, O	4
Memphis & Charleston R. R. Co., Memphis, Tenn	1	Jackson & Sharpe Co., Car-Builders, Wilmington, Del	2
		Harlan & Hollingsworth Co., Car-Builders, Wilmington, Del	2
		Billmeyer & Small Co., Car-Builders, York, Pa	1
		Southern Car Co., Car-Builders, Knoxville, Tenn	1
		Gilbert & Bush Co., Car-Builders, Troy, N. Y	1
		Ensign Mfg. Co., Car-Builders, Huntington, W. Va	3
		Peninsular Car Works, Car-Builders, Detroit, Mich	2
		Northern Pacific R. R., Brainerd, Minn	2
		R. & D. R. R., Richmond, Va	4
		Lafayette Car Works, Lafayette, Ind	2

Tabulated report of work done by the Excelsior and Chicago Dry Kilns for the Pullman Palace Car Company:

		Feet.
Week ending Oct. 4th, 1884, 32 kilns dried		280,361
" " Oct. 11th, 1884, 39 " "		333,552
" " Oct. 18th, 1884, 45 " "		436,302
	116	1,060,215

Average for each kiln per day for 3 weeks, allowing 5½ days to the week, 9,139 91-116 feet.
J. W. SMITH, for Curran & Wolff.
P. H. GILMARTIN, Foreman of Lumber Yard.

PULLMAN'S PALACE CAR COMPANY, PULLMAN, Ill., Nov. 28, 1884.

Messrs. Curran & Wolff, Chicago, Ill.:

DEAR SIRS: Replying to your favor of the 18th inst., allow me to say, 1st, That I am very much pleased with your Superintendent and the alterations he has made on your Dry Kilns here. 2d, That the Kilns are working much more satisfactorily, drying a greater amount of lumber than before, and at a less cost. 3d, That the report of our own Lumber Yard Foreman agrees with that of your Superintendent. 4th, That while your Kilns give excellent satisfaction, I am not prepared to say that they are the best and most economical Kilns in use, because there are a great many Kilns with which I have had no experience.

Very truly yours,
W. E. BARROWS, Manager.

CURRAN & WOLFF, Proprietors and Builders, 39 and 41 FRANKLIN STREET, CHICAGO, ILL.

VANDERBILT & HUPKINS,

RAILROAD TIES, CAR AND RAILROAD LUMBER, WHITE AND YELLOW PINE OAK, GUM AND CYPRESS.

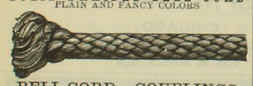
No. 120 Liberty St., N. Y.

Boards, Plank and Dimension Lumber Sawed to Order.

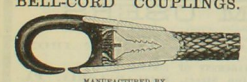
Creosoted Lumber, Ties and Piles to Order.

SOLID BRAIDED BELL CORD

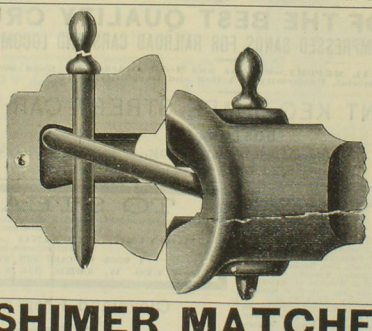
PLAIN AND FANCY COLORS



BELL-CORD COUPLINGS.



MANUFACTURED BY
SILVER LAKE CO.
HENRY W. WELLINGTON, Agent, BOSTON



SAFFORD'S SAFETY DRAW-BAR.

"VICTORY OVER MORE THAN 30 CONTESTANTS."

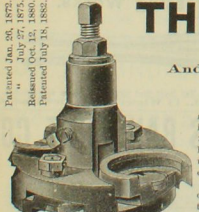
Victory over more than 30 Self-Couplers in the Master Car-Builder's Convention of June, 1876. Also indorsement for safety in coupling by the Yard Masters, in their Convention, June, 1877, and by 300 others who were unable to attend the Convention, and 300 railroad officials who are resident in 26 States, and who admitted superiority over any other yet produced. Try 30 free of royalty, and see for yourself! Pattern free, and no change in timbers or connections. Those made by Wilson, Walker & Co., Pittsburgh, Pa., *will save 200 per cent. in repairs*, and give double life service over *old styles of* wrought iron. About 43,000 in use by 146 railroads. The *saving in repairs* by using *my invention* is from 20 per cent. to 80 per cent. as per *report o many officers.*

J. B. SAFFORD,

EAGLE IRON WORKS

BUFFALO, N. Y.

Patented Jan. 26, 1875.
" July 27, 1875.
Reissued Oct. 12, 1880.
Patented July 18, 1882.



TONGUE HEAD.

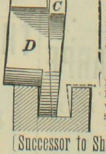
THE SHIMER MATCHER HEADS.

THE CHEAPEST! THE STRONGEST! THE MOST DURABLE!

And yet the Lightest and Easiest Running Matcher Heads in the World. Upward of 12,000 Sold.

The Bits are arranged in upper and lower series, and secured to a Head having seats alternately inclined for the purpose of giving the side clearance to their cutting points. This explains why these Bits hold their shape and turn out standard work until used up; the entire circle of Bit being tool cutting edge.

This diagram represents a Bit (*D*) in the position it occupies when making a cut; the Bit (*C*) which follows to complete the work is given in outline. This ex

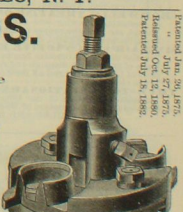


plains the division of cut and the free and easy working of the Tool. They finish hard cross-grained and knotty lumber neatly, showing clean-cut edges and often *save their cost in one day's run.*

We also make **Ship Lap Heads, Jointer Heads, Dado Heads, Sash Heads, Door Heads, Cope Heads** and Heads for any special work where a perfectly uniform pattern is required. Send for Descriptive Circular.

SAMUEL J. SHIMER (Successor to Shimer & Co.), Milton, Penn.

Patented Jan. 26, 1875.
" July 27, 1875.
Reissued Oct. 12, 1880.
Patented July 18, 1882.



GROOVE HEAD.

HOT JOURNALS ENTIRELY PREVENTED.

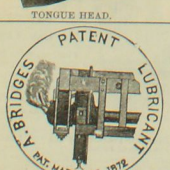
BRIDGES' LUBRICANT

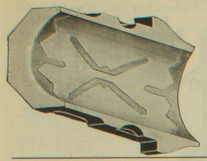
FOR RAILROAD CAR JOURNALS AND OTHER BEARINGS.

SAMPLES FURNISHED GRATIS. SEND FOR CIRCULAR.

Manufacture Hall's Telescopic Screw Jack.

JOHN S. URQUHART, Successor to
ALBERT BRIDGES, 46 CORTLANDT STREET, NEW YORK.





F. W. THAYER & CO.,

SOLE MANUFACTURERS

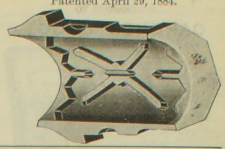
Thayer's Patent Journal Bearings,

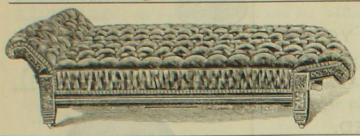
418 TO 422 FOWLER STREET,

MILWAUKEE, - - - - - - - - WIS.

We refer by permission to the CHICAGO, MILWAUKEE & ST. PAUL RAILWAY, who have adopted our bearings over all others.

Patented April 29, 1884.



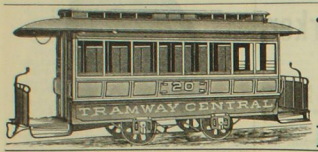


DIRECTORS' CAR PARLOR BEDS.

The cut shows a new Sofa Bed for private cars, built entirely of hard wood, one hundred steel springs low-down back, draw for bed clothing and drop arm at either end.

Upright Beds for Staterooms or Cars, the most simple and substantial yet designed; also, Cushion and Mattress Work of every description. Reference, Boston & Albany R. R.

HENRY L. ALBEE & CO., 36 Washington Street, Boston.

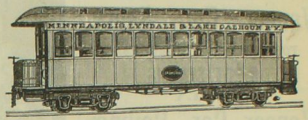


J. G. BRILL & CO.,

PHILADELPHIA

BUILDERS OF

RAILWAY AND TRAMWAY CARS.



FRANK J. HECKER, President. C. L. FREER, Secretary and Treasurer.

PENINSULAR CAR COMPANY.

NEW WORKS AND FOUNDRIES. MODERN TOOLS AND MACHINERY.

CAPACITY, FREIGHT CARS OF ALL CLASSES. CAR WHEELS AND CASTINGS. 30 CARS PER DAY.

DETROIT, MICHIGAN.

A. HEGEWISCH, President. THOS. F. B. Parker, Secy. } New York, N. Y.

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THE UNITED STATES ROLLING STOCK COMPANY,

General Offices, 35 Wall St., N. Y.; Works, Chicago, Ill., and Urbana, Ohio,

Offers for lease to Railroads, Freight Lines, Mining Companies and others, Locomotive Engines, Box, Stock, Gondola, Dump, Flat and Refrigerator Cars,

And is Prepared to Build for LEASE and on Contract for CASH, or under the CAR-TRUST SYSTEM, such ROLLING STOCK as may be Required.

MICHIGAN CAR COMPANY,

JAMES McMILLAN, President.
HUGH McMILLAN, V. Pres. and Gen. Manager.
JAMES McGREGOR, General Superintendent.

MANUFACTURERS OF

RAILROAD FREIGHT CARS and "TIFFANY" and all Other Successful Beef and Dairy Cars.

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W. K. ANDERSON Treasurer.
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Office: Newberry & McMillan Building, Detroit, Mich.

DETROIT CAR WHEEL COMPANY,

Manufacturers of

LOCOMOTIVE AND CAR WHEELS, RAILROAD AND OTHER CASTINGS.

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DETROIT, MICH.

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BAUGH STEAM FORGE COMPANY,

Manufacturers of all Descriptions of

CAR AND DRIVING AXLES, COUPLING LINKS AND PINS, SHAFTINGS DRAW BARS ETC.

JAMES McMILLAN, President.
HUGH McMILLAN, V. President.
JOHN B. BAUGH, General Manager.

Works on River Road, Below City,

DETROIT, MICH.

SAMUEL A. BAUGH, Superintendent.
W. K. ANDERSON, Treasurer.
R. D. FIELD, Secretary.

DETROIT IRON FURNACE COMPANY.

LAKE SUPERIOR CHARCOAL PIG IRON,

FOR CAR-WHEEL AND MALLEABLE USE.

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HUGH McMILLAN, Vice-Pres. and Treas.

DETROIT, MICH.

LEE BURT, Manager.
F. C. WETMORE, Secretary.

FULTON IRON AND ENGINE WORKS,

DETROIT, MICHIGAN.

Fulton's Special Bronze Boxes for Passenger Cars

Bronze Journal Metal for Freight Cars, Hopkins Lead-Lined Bearings, Clamer's Ajax Journal Metal.

JAMES McMILLAN, Prest. I. DEGRAFF, Mgr. M. T. CONKLIN, Treas. HUGH McMILLAN, Secy.

HARRISBURG CAR MANUFACTURING CO.

MANUFACTURE

PASSENGER, MAIL, BAGGAGE

BOX, GONDOLA, COAL

AND ALL OTHER KINDS OF

RAILROAD CARS;

Railroad Car Wheels and Castings, Bridge and Rolling Mill Castings, Bridge Rods, Bolts and

RAILROAD FORGINGS.

JOSIAH M. CLARK

[Successor to WYKOFF, CLARK & IMMEL],

Howell, MICHIGAN,

Manufacturer of

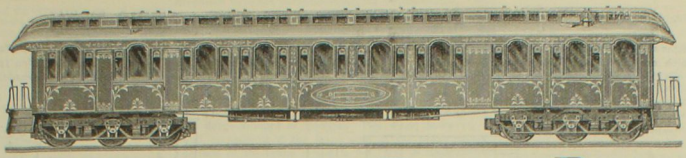
STANDARD AND NARROW-GAUGE

HAND-CARS,

Railroad, Steamboat and Warehouse Trucks, Baggage Barrows, Grain Wagons, and Wills' Patent Car Pusher.

Index to Advertisements in the National Car-Builder.

THE NATIONAL CAR-BUILDER.



DEVOTED TO THE INTERESTS OF RAILWAY ROLLING STOCK.

VOLUME XVI. NUMBER 5. | MAY, 1885. | SINGLE NUMBERS, TEN CENTS. $1.00 PER ANNUM.

Miscellaneous Items.

THE Laconia (N. H.) Car Company is building 100 cars for the Burton Stock Car Company, of Boston.

HASKELL & BARKER, Michigan City, Ind., are building 400 box cars for the Louisville, New Albany & Chicago road.

MR. WM. H. YEOMANS, Superintendent of the Housatonic Railroad, died at his residence in Bridgeport, Conn., April 10.

THE shops of the Wabash, St. Louis & Pacific road, at Peru, Ind., are very busy, and are working ten hours a day with a full force.

PENNOCK BROTHERS, car manufacturers, Minerva, Ohio, are filling an order for 100 flat, 100 box, and 100 stock cars for the Toledo, Texas & Rio Grande Railway.

THE Bass Foundry & Machine Works, Fort Wayne, Ind., are running on full time with a force of 650 men. Their business has of late been steadily improving.

MR. ABRAHAM KLOHS, Superintendent and Master Mechanic of the Ogdensburg & Lake Champlain road, died at his residence in Malone, N. Y., April 14, aged 66.

THE West Albany shops of the New York Central road are just finishing up a dining-car for the limited train. It is an extra car, and was formerly W. H. Vanderbilt's private coach. In it are eight tables. The finish is very neat and is of mahogany and oak. The whole inside is new.

THE Manhattan Elevated Company have received 10 of a lot of 44 new cars that are being built at the Pullman Company's works, Pullman, Ill. They have iron trucks and sliding doors. The Manhattan Company have now a total equipment of 651 passenger, 18 gondola and 3 baggage cars. Nearly all the cars have Allen paper wheels. The company also have 239 engines.

THE *American Machinist* says: "On some of our leading railroads that have tried large wheels under their passenger equipment, serious trouble has been experienced with the wheels getting loose on the axle. The leverage is so great on the small axle, when the wheel strikes a heavy blow on the side of a frog, that in many cases the axle is sprung or the wheel started. Some of the roads are giving up the 42-inch wheels on this account, and others are considering the desirability of increasing the size of the axle."

THE Barney & Smith Mfg. Co., Dayton, Ohio, are engaged on the following orders: 3 sleeping cars 4 passenger coaches, and 200 freight cars for the Milwaukee, Lake Shore & Western; 12 passenger and 4 baggage cars for the Minnesota & Northwestern; 1 mail car for the St. Louis & San Francisco; 3 parlor cars for the Cincinnati, Hamilton & Dayton; 4 sleepers and 3 dining cars for the Canadian Pacific; 4 parlor cars for the Wabash, St. Louis & Pacific; 4 passenger and 2 combination cars for the Burlington, Cedar Rapids & Northern; and 25 palace horse cars for the Arms Palace Horse Car Co., of Toledo, O.

AT the West Albany shops of the New York Central they are putting a new style of step on all passenger cars that come in for repairs. They have 9 inches rise, but there are no regular risers. The back of the step is enclosed by a board set at an angle. The platform is reduced 8 inches in width. The top of the lower step comes within 13 inches of the top of the rail. The steps of the cars of this road have always been considered particularly easy to reach from the rail level, but these are still easier. For stations where there are no platforms and the cars have to be reached from the ground, this is a great improvement. As the new steps do not project any further than the old style, there is no difficulty in using them on the main line.

THE Managers of the Franklin Institute, in Philadelphia, have decided to hold a "Novelties" Exhibition in that city during the autumn of the present year, the exhibits to consist "of such recent inventions, improvements and discoveries in the sciences, arts and manufactures as may be deemed worthy of the name, the place and the occasion." The venerable name of the Franklin Institute is an assurance that the project will be judiciously managed, which is a sufficient guarantee of success. The term "novelties" is pretty broad, and unless restricted to a wholesome limit may be made to include an immense quantity of mere curiosities and trifles. If the standard for admission is tolerably rigid, as we have no doubt it will be, the exhibition will be interesting, instructive, popular and successful.

ALFRED AND J. H. WILSON, of Detroit, Mich., have patented a runway and handrail for box cars, which is one of the best devices of the times in connection with railway transportation. In practice, two or more cars being coupled together and provided with this device, there will be formed a continuous runway and handrail from car to car, which will adjust itself to the various positions assumed by such cars while in motion. By the employment of this device it will be almost impossible for a brakeman to fall between the cars. It may also be stated that if one car is equipped with this device, coupled to one which is not, half the distance being closed, a brakeman could step safely across, holding on to the handles or railing while doing so, without accident; hence danger to life and limb is avoided.

THE Gilbert Car Mfg. Co. have six new passenger coaches under way for the Delaware & Hudson Canal Co. Part of these are nearly finished. The arrangement of these cars is a little different from that usually adopted. They have one saloon and a Baker heater, which are placed in opposite ends of the cars. This gives one window clear in each end and an opportunity to put an end ventilator over each. The finish is in mahogany, and is very neat. The bodies of the cars are yellow, the trucks olive green, picked out with black and white. The company have just finished a lot of sixty one freight cars for a road in New Zealand. These cars have recently been shipped from New York. They built at the same time and shipped a Montgomery palace stock car to the Argentine Republic. This car was 36 feet long inside, and had English buffers, draw-gear, etc.

DURING the winter the Delaware & Hudson Canal Co. have had but little trouble from the freezing of water stations or tanks. Only two have frozen, and in both cases this was due to carelessness. The plan employed is a simple one, and easily applied. It is, of course, understood as a prime requisite that pipes and hose are well protected from frost in the ordinary way. At night, when the fire is dumped in the boiler, the hot coals are shoveled into the cylinder stove with which each station is supplied. The stove-pipe goes into the smokestack, and, upon opening the damper, a few exhausts from the pump starts the fire so that it is ready for the night. In the morning the stove is dumped and the hot coals are put into the boiler. The fire is at once ready for work. This plan has been found to have many advantages, being both cheap and certain. No kindling wood is needed, and the station can be perfectly secure in the coldest weather.

ON the roads of the Delaware & Hudson Canal Co. a very excellent system of accounting for journal bearings is in use. Brasses for all the roads are distributed from the storehouse at the Green Island shops. In all cases, except for new work, when a new brass is called for and used, an old one must be sent to the storehouse. Where an inspector puts in a brass he holds the old one to make his account good. The only persons who carry stocks of brasses and with whom accounts are opened are the car inspectors. To prevent inconvenience they are stationed at short intervals so that there will be no delay in getting the brasses when they are wanted. On putting in new brasses the old ones are sent to the shop and are credited on account to the inspectors. It was found that the old plan of carrying ten or twelve brasses on each caboose did not pay, even when an account was kept with the car or conductor. The men would steal brasses, right and left, at every opportunity, and thus accumulate a stock. Then the car was sure to be broken into and the whole lost by theft. All this is avoided by putting the brasses in the hands of the inspectors and holding them responsible for the old as well as the new ones. How perfectly this system works in preventing loss was illustrated some time since in Troy. Many tons of old brasses were discovered which had been stolen from the railroads. Upon the examination which followed, only 12 could be founded which belonged to the Delaware & Hudson.

Weight of Loads.

It is not yet fifteen years since Mr. Robert Fairlie, Mr. Spooner and others were preaching the gospel of narrow gauge as a remedy for all the evils which befall railroads. One of their strongest claims and heaviest argument they found in the fact that their narrow cars could carry a load which was double the weight of the car itself. They proudly asked where on a standard gauge road was such a thing possible, and then explained that it "couldn't be done" because the gauge was too wide. The interest in this question has died out to a great extent. But the discussion which was provoked has done much good, for it set railway men thinking and they have discovered that most of the standard gauge cars were loaded too lightly in proportion to their strength. The tendency now is to build light and strong, and if the old question should again be raised, the argument would all be on the side of the standard gauge roads. Now it is a heavy car that weighs more than half of the load which the stencil mark on its side shows it is allowed to carry. The other day, we saw an open coal car with eight wheels which was stenciled to carry 50,000 pounds; its weight was marked as 19,100 pounds. This is a ratio of about 2.62 between the dead and paying weight. The ratio of three to one is not uncommon in actual practice, though it is rare that any road has the courage to stencil such a figure on its cars. Could the load be restricted to the actual weight allowed, there would be little difficulty in the way of increasing the standard loads of our freight cars considerably beyond the present figures.

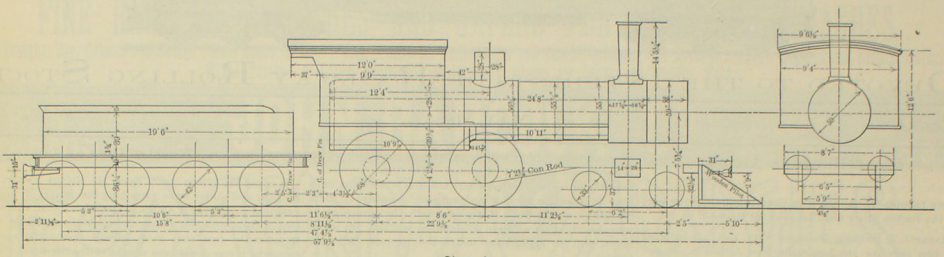
The real difficulty appears to be that the actual loads do not appear in the freight bills. Last year a "10-ton" car loaded with green lumber broke down in a freight yard in Cleveland, Ohio, while being shifted. The load was so unusual that pains were taken to ascertain its weight. It was estimated from the measurement at 56,000 pounds. The weight of the car itself was probably not over 18,500 or 19,000 pounds, which would give a ratio of 2.93 between dead and paying weight. The figures, however, are probably much below the actual weight, which may have been upwards of 60,000 pounds.

Steel Rails.

Steel rails for railroads are now made so cheap that there is no money in them unless they are reduced in quality to correspond to the price. So say those who use them and ought to know. A good steel rail, like those put down on some, if not most, of the roads centering here, in the first place, can't be made for less than good iron rails, but, nevertheless, steel rails are selling by contract for $26.50 a ton. The inference is pretty strong that the the cheap steel is a poor article. It may not batter on the "head," and split off in long splinters, as iron rails do under heavy use, but it won't stand the strain of wear and weight and cold without great danger of breaking, greater than a good, or even modern iron rail. Companies, however, will put down cheap rails to make a good showing to stockholders and bondholders, and they won't see the impolicy till they have a few "smashes" from broken rails and a few heavy damage suits to meet. Mill owners will make poor rails as long as anybody will buy them, and make them poorer and cheaper the longer they keep at it and know better how to sophisticate their work. Said a witness before a committee of the House of Commons, set to investigate the rail manufacture some thirty years ago, not long after railways were on their first practical "boom" in Indiana: "The first question asked me at the mill I was negotiating to take the superintendency of was, 'How much slag can you work into a rail?'" Already manufacturers had learned how to substitute defective material and indifferent work for a good rail that couldn't be made for the market price. The hard, brittle slag was coated over with good iron, which, being expansible, was beaten by the car-wheels loose from the unyielding, glassy slag beneath, as pawpaw bark is beaten loose from the wood by a boy in making a whistle, and of course it would peel off in long strips before a good rail could have been half worn down. Cheapness is not always economy in railroads more than other forms of business.—*Indianapolis News.*

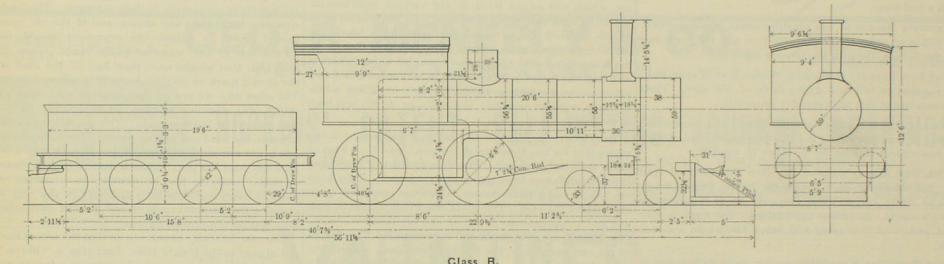
STANDARD LOCOMOTIVES OF THE NEW YORK, WEST SHORE & BUFFALO RAILWAY.

The accompanying diagrams and specifications show the dimensions, capacity, etc., of the standard locomotives of the New York, West Shore & Buffalo road. These standards comprise four classes, which are known respectively as A, B, C and D. The classes A and B are passenger engines, class C is a consolidation freight, and class D a six-coupled tank engine. We are indebted to Mr. R. H. Soule, the Superintendent of Motive Power, for the blue prints from which the diagrams are made.



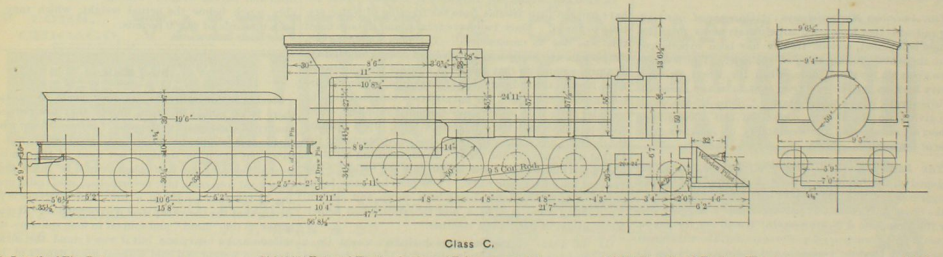
Class A.

Inside Length of Fire-Box	10′ 8″	Total Heating Surface—square feet	1,212	Capacity of Tender—Water	3,000 gall.
Inside Width of Fire-Box	3′ 1⅝″	Distance between Centers of Frames	3′ 8½″	" " —Coal	10,000 lbs.
Fire Grate Area—square feet	34	Weight of Engine in Working Order	96,000 lbs.	Weight of Tender, Empty	34,000 "
Length of Tubes between Tube Sheets	10′ 10⅜″	" " in Working Order on Drivers	64,000 "	" " Loaded	64,000 "
External Diameter of Tubes	2″	" " " 1st Pair Drivers	32,500 "	Engine and Tender fitted with Air-Brake.	
Number of Tubes	188	" " " 2d " "	31,500 "		
External Heating Surface of Tubes—square feet	1,084	" " " Truck	32,000 "		



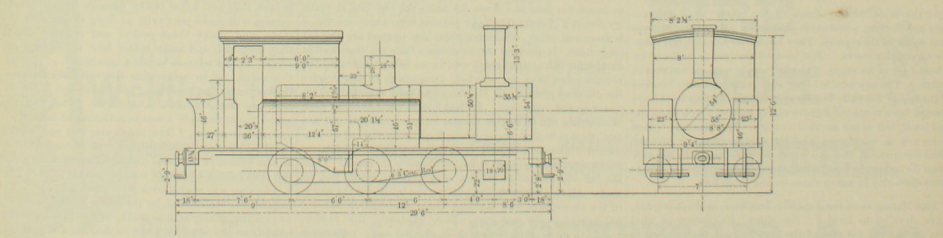
Class B.

Inside Length of Fire-Box	5′ 10⅝″	Total Heating Surface—square feet	1,212	Capacity of Tender—Water	3,000 gall.
" Width " "	2′ 10⅞″	Distance between Centers of Frames	3′ 10½	" " —Coal	10,000 lbs.
Fire Grate Area—square feet	17	Weight of Engine in Working Order	94,500 lbs.	Weight of Tender, Empty	34,000 "
Length of Tubes between Tube Sheets	10′ 10⅜″	" " in Working Order on Drivers	62,500 "	" " Loaded	64,000 "
External Diameter of Tubes	2″	" " " 1st Pair Drivers	32,000 "	Engine and Tender fitted with Air-Brake.	
Number of Tubes	188	" " " 2d " "	30,500 "		
External Heating Surface of Tubes—square feet	1,084	" " " Truck	32,000 "		



Class C.

Inside Length of Fire-Box	7′ 11⅜″	External Heating Surface of Tubes—square feet	1,340	Capacity of Tender—Water	3,000 gall.
" Width " "	3′ 10⅝″	Total Heating Surface—square feet	1,460	" " —Coal	10,000 lbs.
Fire Grate Area—square feet	23	Distance between Centers of Frames	3′ 11″	Weight of Tender, Empty	34,000 "
Length of Tubes between Tube Sheets	13′ 4½″	Weight of Engine in Working Order	104,000 lbs.	" " Loaded	64,000 "
External Diameter of Tubes	2½″	" " " on Drivers	88,000 "		
Number of Tubes	160	" " " on Truck	16,000 "		



Class D.

Inside Length of Fire-Box	5′ 2⅝″	Number of Tubes	169	Weight on 1st Pair of Drivers	32,000 "
" Width " "	2′ 10⅞″	External Heating Surface of Tubes—square feet	888	" " 2d " " "	32,000 "
Fire Grate Area—square feet	16	Total Heating surface—square feet	952	" " 3d " " "	32,000 "
Length of Tubes between Tube Sheets	9′ 9⅝″	Distance between Centers of Frames	3′ 11″	Capacity of Tank	1,200 gall.
External Diameter of Tubes	2″	Weight of Engine in Working Order	96,000 lbs.	" " Coal Bunker	5,000 lbs.

Meeting of Railroad Men at Buffalo.

A meeting of representatives of the Car Departments of various roads interchanging cars at Buffalo, Black Rock and Suspension Bridge, was held at the Tifft House, Buffalo, on Tuesday, April 8, President McWood in the chair.

The following roads were represented: Grand Trunk, New York, Lake Erie & Western, Lake Shore, Del. Lack. & Western, Boston & Albany, Lehigh Valley, Pa. & N. Y. C. & R. R. Co., Mich. Central R. R., Canada Southern Division, West Shore, Phila. &. Erie, Northern Central, N. Y. C. & H. R. R. R., New York, Chicago & St. Louis Ry. and Fall Brook Coal Co.

The reading and discussion of the minutes was followed by a general discussion of the advisability of forming a regular club after the style of Chicago and Boston. The matter was finally referred to a committee consisting of F. M. Wilder, Jno. Kirby and Robert Miller, with instructions to report at next meeting.

The matter of extraordinary failures of wheels in freight service during the past winter was then referred to and very thoroughly discussed. The different members referred to the breakages on the several roads, assigning as a reason for the extraordinary large percentage of broken wheels the use of very poor material, the improper distribution of metal and the light weight. The joint inspectors at Black Rock and Suspension Bridge stated that in their experience about 10 per cent. of the broken wheels removed by them were removed on account of cracked brackets. This was substantially confirmed by the experience of the different Master Car-Builders. From a statement prepared by one of the representatives present, it was shown that in the case of one wheel-maker, 25 per cent. of the total number of wheels of that make in service on his road gave out during the past season. In two other cases the percentages were 11 and 12. In the majority of the cases it was as low as ¼ of 1 per cent.

As a result of this discussion the following resolution was prepared and unanimously adopted:

Whereas, It has been shown by statements made at this meeting that it is the experience of those responsible for the maintenance of cars, that of the whole number of wheels broken or cracked in service, a large percentage are wheels of the makers who sell low-priced wheels;

Resolved, That it is the sense of this meeting that the practice of buying low-priced wheels should be condemned both on account of safety and economy in operating railways.

It was decided that this resolution be placed on the minutes of the meeting and be printed in the railway papers.

The next meeting to take place on Wednesday, August 12, 1885. Adjourned.

T. W. FREDERICK, Secretary.

A New Freight Car Truck.

Mr. Harrison Loring, of Boston, has recently brought out a new freight car truck. It was at first intended for use under Mr. Loring's wrecking and construction car, and involves a number of novel features both in design and construction, that should receive the attention of car-builders. The truck is of iron and of the diamond type, but beyond the fact that it has a diamond arch-bar, presents very few points of similarity to the ordinary diamond truck. The transom is like a box girder with the top removed. It is formed by riveting up angle-irons upon a flat plate which forms the bottom. The upper edges of the sides are strengthened and stiffened by T-irons. An end view shows a U-shape, with a flat bottom and inside edges parallel. The bottom arch-bar is riveted to the end of this transom, and against its sides the guide pillars are placed. The transom projects about a foot beyond the arch-bars A horizontal brace of angle-iron extends outward from the boxes to the transom, across the end of which it is secured by rivets. A bolster, similar in construction to the transom, but open at the bottom instead of the top, fits into the transom itself, the latter forming a guide. The appearance of the two when in place is that of a box transom. In the box or opening thus formed are placed the springs. As there is ample room, these may be of any length or size that may be desired. This construction allows the use of a new and peculiar spring arrangement. Directly under the center-plate, a large spring is placed, which is made strong enough to take half of the weight of the load. The remainder is distributed between the two springs under the side-bearings. By means of a neat combination of center-plate and king-bolt, the central spring takes its load first, thus forming a true center-bearing, with the spring directly under the load. This is claimed as an entirely new feature. Spring side-bearings have also been devised, by which the bearing on them is rendered elastic. There are six bolts on each side to hold the arch-bars and guides. These are arranged in sets of three each. One passes, as usual, through the center of the guide and the arch-bar, and the others are outside. A triangular washer on top takes the heads of all the bolts, and another below gives a bearing for the nuts. The upper washer is struck up to shape so that it takes a fair bearing on the bars and holds them firmly, while at the same time it has level surfaces for the heads of the bolts. This construction enables an unlimited strength to be given to the bolts without weakening the arch-bars. The central bolt can be made small, and its chief value is in binding the parts together. The strain from the load comes chiefly on those outside.

This truck as built for the derrick cars, is modified to obtain an increase of strength. The sides of the transoms are made deeper at the centers than at the ends, and the bottom plate is curved to correspond. This construction enables the transom to be made 20 inches deep in the center; this may be done in all cases where a very strong truck is needed. The brake-shoes are not applied to the wheels, but to special brake-wheels placed on the axle inside the main wheels. Attempts have once or twice been made to carry out this idea, but have failed because the inventors have not comprehended the requirements. Apparently, in this instance, all the conditions have been carefully considered. Inside the truck-wheels are a pair of brake wheels around which a strap passes like that of a common Prony brake or dynamometer. This strap is of wrought-iron, and carries the brake blocks, which extend half way around the wheel. One end of the strap is fastened to the bolster and the other carries the brake lever. The force which is thus obtained is enormous, with a correspondingly large amount of friction. The wear, however, is small, on account of the large area of the brake blocks. The face of the brake wheel is flat, and is three inches wide. It might be grooved, if desired, and some wheels have been constructed in this way and have given very good results. The construction of the brake wheel is very light, and at the same time strong. It is a spoke wheel of cast-iron, the spokes being of wrought-iron tubing cast in place. The hub is bored out like an ordinary car wheel and of the same size. In putting it on, the axle at the wheel fit is turned up three inches further than it would be for a wheel, and then wheel and brake-wheel are pressed on, the brake-wheel going on ahead of the wheel, the two hubs of course touching each other. From the experience which has been gained in the use of this brake, it appears that it will effect great saving in the wear of car wheels. The dangers from broken treads will be lessened, and there should also be a considerable gain arising from a smaller number of breakages due to heating of wheels.

The brake-wheels, not having the wear of the rail, and being comparatively free from mud and dust, should have as long life as the wheels themselves. This method of applying the brakes does away with the necessity for break-beams and may simplify considerably the break hanging.

The Lake Shore Apprentices' School.

The Lake Shore Railway has always had the reputation of turning out good railroad men, as may be evidenced by the number who have secured lucrative positions on other roads through their connection with that company. The same principle applies to their workmen, and those who leave their trades at the company's shops are the brightest of mechanics. One of the reasons for this is the thorough training every apprentice of the company receives.

In order to better fit their apprentices for the practical work of life after they have served their time, the idea was conceived some eight years ago by Mr. Charles Paine, then General Superintendent, of establishing a school for drafting for the benefit of apprentices. So well has the idea worked that many people are anxious to have their boys learn their trades in the Lake Shore shops. In fact, it has become recognized as an honor to be selected as an apprentice. Many times, requests have been received from influential men for permission to allow their boys to be taught drafting in the school, but the request is invariably refused.

The school at the Buffalo shop is in charge of Mr. Matthew Scanlan, who graduated from it and who is now the draftsman of the shop here, besides having entire charge of the tools. His experience in the school taught him just what the scholars needed to learn, and the result is, that in order to explain the lessons thoroughly models are used in addition to the blackboard drawings. The school is now attended by sixteen apprentices from the blacksmith, tin, boiler and machine shops, who are obliged to attend the class for two hours on one night each week. A vacation of two months from the lessons is given them in July and August of each year.

As a rule, when the boys first enter the school it seems dull and uninteresting for them, but the many advantages they are given in the way of study soon make them earnest attendants. The advantage of this instruction is that they can obtain both theoretical and practical educations at the same time. During all of the time Mr. Paine was connected with the road he offered a prize of a book on mechanics each year to the boy making the most progress in his class. Master-Mechanic J. S. Graham and Shop-Foreman Peter Fowler are both earnest friends of the school, taking great interest in its progress and furnishing it with all the facilities at their command. No apprentice is allowed to work in the shops unless he attends the drafting school, and a refusal to attend it results in his place being filled by another.

The Lake Shore is deserving of credit for its efforts for the advancement of the apprentices, and to none more so is this credit due than Mr. Charles Paine, who first conceived the idea.—*Buffalo Express.*

WILLIAM A. FOSTER, who has resigned his position as assistant superintendent of motive power of the V. & M. Division of the Fitchburg Railroad, on account of the position being abolished, has been in the employ of the Vermont & Massachusetts and Fitchburg railroads for some thirty years. Commencing as a fireman when he was sixteen years of age, he has served constantly and faithfully to the present time—two years as a fireman, three years in the machine shop, one year as foreman of the machine shop, fifteen years as locomotive engineer, nine years as master machinist, including 1¼ years as superintendent of motive power when Mr. Coolidge was absent.

Communications.

Stresses on Piston-Rods.

To the Editor of the National Car-Builder:

In your report of the proceedings of the Western Railway Club, published in your April number, Mr. Forsythe is reported as saying, "On piston-rods there should be a double factor of safety, because the piston-rod is subject to alternate tensile and compressive strains at every revolution." As Mr. Forsythe repeats this opinion in another part of his remarks, there is no mistake about his meaning. Therefore, I wish to say that he is laboring under a mistake, and his remarks may be apt to lead others into error.

If the factor of safety of a piston-rod is made sufficient so that the rod will be strong enough in the direction in which it is weakest, it will certainly resist the lesser strains it may be subjected to without danger. Say you design a rod which, owing to its length, is weakest under compression. If you strengthen that, giving the rod a proper margin of safety, you do not require to add another half because at certain times the rod is subjected to a tensile strain. Yet that is precisely what the remarks of Mr. Forsythe indicate as being necessary.

DRAUGHTSMAN.

Standard Screw Threads.

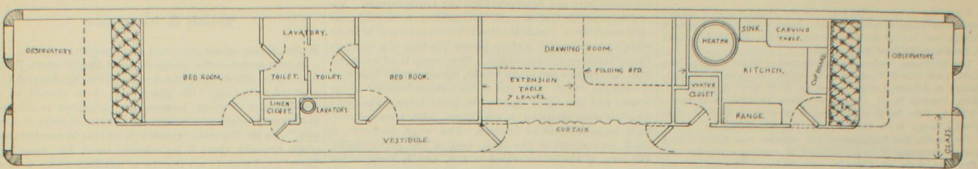
To the Editor of The National Car-Builder:

A very general disgust is being manifested in scientific papers because of the differences in sizes which have recently been discovered in standard nuts and bolt-heads. The U. S. Standard and the so-called Franklin Institute or Sellers' standard differ very considerably, and it is found that many establishments are having nuts and bolt-heads made without regard to the rule. This illustrates the beauty of having a standard for every thing, and expecting people will be foolish enough to adhere to it in all cases whether it be suitable or otherwise. It is supposed that a bolt-head which will break the bolt in cast or wrought iron is amply strong for all materials. This is undoubtedly so, but that is no proof that it is of the proper size for all places in which a bolt will be used. A quarter-inch plate-bolt in Georgia pine, with usual size of washer, begins to pull through with a little more than 400 pounds. In that position, a head and washer more than 1.3 inches in diameter is called for. Is it any wonder, therefore, that many persons prefer in certain positions correct proportions to perfect conformity with the standard? Standards are in the highest degree valuable, but it is impossible to obtain them by mere agreement. If a proposed standard is perfectly adapted to the purpose for which it is intended, very little difficulty will be found in securing its adoption, and there will be little trouble in adhering to it. The great difficulty with the so-called standard thread is, that it does not cover a sufficiently wide range of work, and is not adapted to many of the purposes for which screws must be used in the arts. The pitch in the smaller sizes has been severely criticised. Undoubtedly at some time in the future a new series of threads suitable for small screws, brass work, optical goods, etc., will have to be added to those already considered standard.

B.

Cracked Wheels.

From the number of cracked wheels which have recently been reported, the conclusion has been drawn that the quality of cast-iron wheels has been rapidly falling off. The facts, however, do not appear to justify such an idea. What they do show is, that certain makes of cheap wheels are of exceedingly poor quality. Out of 145 wheels taken out for cracked plates at one of the inspecting points within the past month, 59 per cent. came from two foundries, both of which are controlled by one company. The remaining 40 per cent., consisting of 59 wheels, came from about fifty different makers, scattered all over the country. Some of these wheels were very old and were thoroughly worn out. So great has been the complaint against these certain makes of wheels that one master car-builder has been forbidden to put them under the cars of one of the lines with which his road connects. Other roads have been seriously considering the policy of refusing to accept cars having these wheels. Such a condition of things is no less surprising than dangerous. Such wheels cannot be considered safe to run. When placed under cars they throw a great deal of trouble and expense on the roads receiving them and cause frequent transfers of freight. The remedy which appears to be most feasible is to refuse to receive any cars having these wheels, and to forbid connecting and foreign roads to use them in replacing wheels. If this does not effect an improvement in the quality they will cease to be used on the roads, because they do not pay, even though their life be guaranteed for three, four or more years. No road can afford to put in new wheels every six months, even though they be furnished gratis. The cost of boring, fitting and putting them under cars, together with the delay, makes the cheap wheel, even when its life is guaranteed, altogether too expensive to be profitable when compared with the cost and life of a good wheel.



PLAN OF DIRECTORS' CAR FOR LOUISVILLE, NEW ORLEANS & TEXAS RAILWAY.

THE Gilbert Car Manufacturing Company have just finished a directors' car for the Louisville, New Orleans & Texas Railroad. Though a plain car for one of its class, it is very complete and the arrangements are unusually convenient. It is 59 feet 9½ inches long over the body, 9 feet 7½ inches wide. It has double iron transoms and six-wheel trucks, with paper wheels. Mr. Hoit, the superintendent of the works, has introduced a new feature into the framing. This consists of a double truss plank immediately under the floor and bolted to the sills. One of these lies on the top edge of the sill and has the posts halved into it. The other lies immediately under the flooring. This does away with the boxed-in appearance when the truss plank is allowed to project inside the finish. By this construction the plank is flush with the panels and is much neater in appearance.

The inside of the car is divided into several large rooms. There are two observation rooms, one at each end of the car. These are furnished with large windows giving a fine view in all directions. Each of these rooms has a sofa bed which opens out to 4 feet in width. There is a large drawing-room as shown in the floor plan, two bedrooms and a kitchen. The bedrooms, it will be seen, each have toilet rooms, with a door between, connecting them. Each bedroom is provided with a brass bedstead, gilt-finished. The large windows coming on a line with the hall or vestibule give an uninterrupted view from end to end. The kitchen is a model in its arrangement, and has the usual range, sink, carving-table and side-board. In addition to this it contains the Baker heater.

This saves some little space which is usually wasted by putting the heater into a separate space. The dining-room, as is shown, occupies the whole width of the car, and contains a folding bed which folds up flush in the day time, so as to show nothing but fine paneling. When opened, the clothes-hooks on the front form legs, upon which it is supported. At night this room is cut off from the gangway by curtains, hung from a curtain-rod, which is placed just outside the line of the raised deck. This gangway at the side is a great advantage over one in the center, as there is less disturbance from the passage of persons through the car at night; and the inside space is less cut up.

The inside finish is of mahogany, but the moldings are rather a novelty in their way, having no coves or ogees. The whole of the work is flat, with bevels and angles instead of curves.

A noticeable advantage of this style is, that it furnishes no receptacles for dust or dirt. The ceiling is of white beach highly decorated with conventionalized ornament. The trimmings of the car are gold-plated. There are eight lamps, part of them having double, and part four burners each. Sofas, chairs, etc., are all trimmed with leather of alligator pattern.

The exterior of the car is painted buff with gold striping and Renaissance decoration. The striping runs the whole length of the body. Decoration, at intervals, which divides the whole into panels. Decoration is also placed on the letter board and panels.

Master Car-Builders' Club.

CAST-IRON CAR WHEELS.

The regular monthly meeting was held at the rooms, 113 Liberty street, on Thursday evening, April 16.

The President, Mr. Leander Garey, announced the subject for consideration to be, "Cast-Iron Car Wheels, the manner and causes of their failures while in service during the past four months."

Mr. W. E. Partridge said that the failure of wheels was partly due to skin railroads and partly to skin wheel makers. At one shipping point, out of 143 wheels removed within two weeks, 43 of one maker were removed for cracks in the plate, and 51 from another foundry controlled by the same firm, or 94 in all out of 143. The remaining 49 wheels were from various foundries, one or two wheels to a firm; not over two in any one case. Many of the car-builders tell stories much worse than that. Part of them, I think, are unjustly condemned. The cracks are too fine, and in some cases new wheels are thrown out. The rusted line of the fin had been mistaken by the inspector at night for a crack, and out came a new pair of wheels. Probably they had not run 100 miles. In several yards he had found from 20 to 26 per cent. of the wheels rejected were for cracked flanges. He doubted whether the wheel-maker could be blamed for that. There are instances on Eastern roads where a wheel, starting with a hair crack at an inspecting point, has, in running less than 300 miles, opened to such a degree as to make immediate disaster not only possible, but highly probable. Something better will be sought after. All know that a cast-iron wheel can be made so tough that it will probably hold together quite as long after a flaw has manifested itself as any of the wrought-iron or steel wheels. The older wheel makers have shown samples of wheel iron drawn down from a round spoke into a flat plate under the hammer. Such metal as that is quite as good for wheel puposes as is necessary, but it is not getting into the $5.50 wheels which are being used on some roads now.

Mr. F. M. Wilder had not heard of any wheel being sold at less than $6.50, and asked who is buying and selling them at $5.50.

Mr. Partridge said that figure has been repeatedly quoted to him within the past month. Some of the western railroads have written cast forbidding the replacing of wheels taken from their cars with certain specified brands.

A letter from Mr. Sanford Keeler, Superintendent of the Flint & Pere Marquette road, was read, of which the following is the material portion:

"We have had but very few failures of wheels this winter, although it has been one of the longest, coldest and most severe in our experience for many years. I attribute this to the fact that our road is entirely laid with steel rails, and they are all in good condition. We have had two failures of wheels under our passenger cars, by the giving out of the flange and a portion of the tread; and the cause I attribute to their being made of cheap stock; that is, not the proper material for a good wheel. These two failures were both from cheap wheels that had been run but a short time, and were substituted in place of Paige wheels while Paige wheels were being turned. We are using a great many cast-iron wheels in our passenger equipment, but nearly all of them are made from a better grade of iron, and cost proportionately more. Our better class of wheels are made from Richmond and Salisbury iron. Of these wheels, which are warranted to be made of this iron, we have not had a failure this winter. My opinion of the cause of many of the failures in cast-iron wheels is, that the wheels are not heavy enough, in the first place, to carry the additional load that has been put to the capacity of cars the last few years; and in the second place, that the material put in is not of the proper quality. The sharp competition in this business has caused wheel-makers to make as cheap a wheel as possible, and in order to do that they have to buy cheap grades of iron."

Mr. F. M. Wilder said: I will state that our road, the New York, Lake Erie & Western, has probably got as good a wheel record as any other railroad in this country. In fact, every individual wheel applied to our cars by ourselves has a record, positively known as to what service it performs, how long it lasts, whether it fails before it performs its guaranteed service or not. With what we call our regular wheel makers, of whom we buy wheels regularly, we have a guaranteed service of four years under freight cars, and 50,000 miles under passenger cars. I have had a record made up for the year 1884, giving the number of wheels which we had in the service and the number which have failed from breaking or cracking, as follows:

In service in 1884, about		250,000
Removed for cracked plate	2,121	
" " cracked tread	490	
" " cracked spokes	255	
" " broken tread (piece gone)	248	
" " broken flange	116	
" " cracked nut	99	
" " cracked flange	52	
" " not stated	12	
		3,393

Or 1.36 per cent., or 1 in 74.

This does not include the wheels removed for the effect of wear or soft spots of any kind. The records by makers of such failures (not including effect of wear) was:

Out of 40,000 wheels by one maker, 130, or 1 in 312, had failed.

Out of 43,000 wheels by another maker, 197, or 1 in 217, had failed.

Out of 21,000 wheels by another maker, 124, or 1 in 178, had failed.

Out of 40,000 wheels by another maker, 456, or 1 in 88, had failed.

Out of the total of 144,000 wheels by four makers, 907, or 1 in 159, had failed.

The following records of cheap, poor wheels during the same time are to be compared with the above:

Out of 1,754 wheels by one maker, 378, or 1 in 4, had failed.

Out of 436 wheels by another maker, 118, or 1 in 4, had failed.

Out of 700 wheels by another maker, 92, or 1 in 8, had failed.

Out of 1,500 wheels by another maker, 163, or 1 in 9, had failed.

Out of the total of 4,390 wheels by four makers, 751, or 1 in 5.8, had failed.

Best record of cheap wheels, 1 in 72.

Best records of good wheels, 1 in 312.

This company had been paying its regular makers $11 per wheel until very lately. The irregular makers had, he thought, furnished wheels (not to the railroad, but to the builders who constructed the cars) for $6.50 or $7. In making up this report to the General Manager of his road, Mr. Wilder said that wheels that would fail 1 in 4 were not fit to put under their cars, even if given to them. It is utterly impossible to test a wheel reliably before it is put into service, but reliable statistics show that certain wheel-makers make a wheel that will fail to the extent of only 1 in 300 in a year on account of being cracked or broken, while other wheel-makers make a wheel that will show a result of 1 in every 4. He thought it the duty of every railroad company to buy wheels of a wheel-maker whose wheels can show a record, say 1 in 300, or at least 1 in 200, as a fair average for wheels removed for breaks or cracks. Of course the wheel-maker who demands $11 or $10 a wheel offers a wheel which he expects to carry out a certain guaranteed service; so that it is worth the money. Keeping in view the chances of loss and a fair margin of profit, if they bought a wheel, as Mr. Partridge says, for $5.50, there is at least half a dollar to a dollar profit in that wheel *somewhere*. How to make a wheel which will not cost the maker even over $5.50, with pig iron at $17, the wheel weighing 575 lbs., is a problem which they could figure on for themselves.

Mr. Garey said that Mr. Keeler's letter was a strong protest against cheap, low-priced wheels. It seemed strange that any man dare to experiment, and perhaps in effect commit murder, by furnishing cheap wheels which he must know, if he knows anything, are sure to be the cause of accident and very likely loss of life.

Mr. S. P. Ensign said men would not make such wheels unless some railroad man would buy them.

Mr. Wilder's experience with broken plates was that they generally began with a fine crack in the outside plate of the wheel where the double plate comes up, just below where it meets the single plate. He had been very much annoyed with a certain class of wheels from a certain wheelmaker. At one point he had to remove an average of 15 to 20 wheels a day during this hard winter, in order to get his cars—cars that have been passed to his road—accepted by the connecting road. For the most part they were new wheels, that had not been in the service more than a year.

Mr. Whitney asked what was the comparison in regard to those wheels that failed at the rate of 1 in 200 or 1 in 300 (leaving the low-priced wheels out of consideration), as respects durability under wear? The wheel-maker has to consider both questions.

Mr. Wilder in almost every instance had found the total percentage of wheels removed almost exactly in proportion to their price. In other words, every wheel-maker must make a certain amount out of his wheels, and if he don't get it out of the price he gets it out of the wheel.

Mr. H. S. Goodwin said it had been the rule and custom of the Lehigh Valley Railroad for a great many years, when it had cars built by contract, to furnish the wheels and axles itself. They had a wheel foundry of their own, and the officers in charge have *carte blanche* to order iron to make the best wheels. Whenever they had departed from this rule by buying wheels, they specified what kind of wheels should be used, and from what makers, and they had none of the trouble which Mr. Wilder mentioned. He thought their wheels lasted on an average four years.

Mr. Wilder said further that out of the 250,000 wheels which his road had in service during the year 1884, about 60,000 were wheels of old makers, and the balance of the wheels were of what they consider their regular make, guaranteed for four years. He was prepared to assert that they had the most complete wheel record of any railroad in this country, established by Mr. Brooks. It gives each wheel, individually, the number, the maker, date put into the service, when received, when applied to axle, when applied to car, when removed from car. The time it lies still is noted, and if removed and applied to another car, that is also noted. He thought such a record absolutely necessary. To their regular wheel makers they paid a dollar or two, and sometimes four dollars, more than they could buy wheels for in open market, because they gave a guarantee. With these makers out of 200,000 wheels they had an average of 1 in about 250 worn out, and 1 in 84 cracked or broken, while of their old makers' 60,000 wheels they had an average of about 1 in 20.

Mr. Garey said the practice some few years ago was for three years' guarantee under freight. This crawling up to four years was a little severe perhaps on the wheel-makers. Many of them do not exceed 10,000 or 15,000 miles a year, but those in line service have been making an average of about 20,000 miles a year. This requires a service of 80,000 miles to meet the guarantee.

Mr. Swett, of Troy, said that since they improved the pattern of their 33-in. passenger car wheel they had made from 80,000 to 100,000 wheels of that pattern, and he had seen but *two* broken wheels out of the whole of them, and those he attributed to an accident which they had in their pits. The wheels were cooled improperly in consequence of it. He had never seen a broken flange or tread and but two checked brackets, both on one wheel. He should never have expected such a report about anything that went by the name of car wheel. His firm did not receive a great amount of encouragement to make a good wheel. They are asked to compete in price with cheap makers who come into the market with wheels for $8 or $9. He knew nothing about the $5.50 or $6 wheels. It is every man's duty who has anything to do with railroads to discourage this business of buying cheap wheels. Pay a fair price and demand a good article. They were making wheels to-day for one road at a loss of 34 cents on a wheel, holding off in the hope that they would repent some day and pay a decent price. They did it because they were driven to it by the other makers.

Mr. Whitney asked if it were usual to record anything in regard to the wear on the tread? The attention of the railroad men seems to be directed to breakage. It will not do to take into account simply breakage; it must be a wheel that will wear.

Mr. Garey said the record covers any wheel failing from inherent cause, from wearing out or from breakage, from crumbling tread or other causes; except that skidding, sharp flanges and ordinary chip treads are not chargeable to the manufacturer.

Mr. Swett said that although they had had only two

wheels broken, he should add that they had had a great many spot on the face. The improved modes of braking, the increased weight put upon the wheels and the increased speed all have a tendency to make the wheel spot. If the brake is held long enough, the wheel will heat, probably red hot, and in cooling will check up into little checks from $\frac{1}{16}$ to $\frac{1}{32}$ in. square. If the iron is not tenacious enough to hold it together, and the wheel is run afterwards any length of time, it will crumble out and spot. He had broken out a section of the wheel and examined it under the glass, and found that the checks run in from $\frac{1}{8}$ to $\frac{3}{8}$ in. A wheel will also spot from being poured too cool, but the great trouble is from sliding.

Mr. Whitney said that was exactly his firm's observation. Even if wheels show no signs of those little marks, by polishing the surface the lines will all develop themselves. As a rule they are found only on wheels used with a brake under heavy weight and at a high speed. Being cold-poured is another cause. The molder is sometimes responsible in his desire to avoid chill-cracking.

Mr. Snow had noticed that very ductile iron that is strong will give a long service in the wear of the chill. The Pennsylvania Railroad has kept as accurate an account of wheel mileage, almost, as the Erie, and it has proven that, out of all the different causes of failure, they have got the most mileage from those designated as being crumbly or spotty and removed from that cause.

Mr. Blanchard was not at present actively engaged in operating railroads. Away back in the past ages he had something to do with this branch of the businesss. It had been a study with him from the beginning of his experience as a railroad man to try, if possible, to ascertain the best methods. Mr. Blanchard then delivered a pleasant address, urging the introduction of better methods of test, in order that there may be less guess-work and more knowledge in railroad management.

Mr. Wilder thought Mr. Blanchard mistaken in regard to the amount of guessing railroad companies are doing. His company keeps accurate records of its various supplies, and has a laboratory where chemical tests are made. It also tests its lubricants. The figures he had given were entirely for freight equipment. He imagined they would be very much higher under passenger equipment. He thought that Mr. Snow would rather guarantee his wheels for four years under their freight cars than to guarantee them for 50,000 miles under passenger cars.

Mr. Snow thought Mr. Wilder correct. He had just gone over some interesting data in regard to his experience with wheels on the Erie road. In 7 years and 9 months service he found their guarantee had cost them exactly 54 cents per wheel for that time. Perhaps a larger part of his wheels have been under passenger cars than any other maker's, and he had furnished the Delaware Division exclusively in this time.

Mr. Swett called attention to the relative value of this guaranteed wheel business. His firm guaranteed to make a wheel run 50,000 or 60,000 miles under passenger cars. Now when the wheels run 45,000 or 50,000, they are thrown out and they were called on to make the wheel good and put another on, and that makes 45,000 or 50,000 miles, and then we are asked to made that good, so we furnish guaranteed wheels over and over again. In regard to their mode of testing wheels, they imbed a solid piece of iron in the ground, place a wheel on the end of it, setting the wheel on the tread, and three or four men with 32-lb. sledges strike the wheel on the face. The object is to give it a blow as nearly resembling that it would receive in actual service as possible. Sometimes the wheel will stand 18, 20, 30, 40, 50 or 60, and some will run up to 80 and 100 blows. They had had wheels break at 60 blows, and were not satisfied with the mixture. If they stand 100 blows of the hammer, it is thought they will do very well. In regard to the weight of the wheel, he should say a cast-iron wheel ought not to weigh less than from 600 to 650 lbs. for a 33-in., in order to get the best results.

Western Railway Club.

STANDARD FREIGHT CAR TRUCKS.

The regular monthly meeting of this club was held April 15. The following members were present.

B. K. Verbryck, C. R. I. & P. Railroad, President; B. McDevitt, City Railway; H. S. Bryan, Chicago & Iowa Railroad; W. Forsyth, C. B. & Q. Railroad, Secretary; Samuel Pullman, C. R. I. & P. Railroad; Ch. F. Pierce, Tiffany Refrigerator Car Co.; John Mackenzie, N. Y., C. & St. Louis; I. I. McCarthy, Ch. Car Roofing Co.; Allen S. Cook, Chicago & Atlantic Railroad; L. F. Tracy; David Spencer; F. W. Redpath, Chicago; John Torrence; W. S. Calhoun; A. L. Hale; Chas. D. Ettinger; G. W. Stevens, L. S. & M. S. Railway; R. W. Bushnell, B., C. R. & N. Railway, Cedar Rapids, Ia., and Geo. Woodbury.

The following gentlemen were admitted to membership: F. M. Atkinson, Chicago Tyre & Spring Works; W. J. Watson, W. S. Brewster and L. E. Johnson.

A suggestion having been made that the meetings of the club be held in the evening instead of the afternoon, some talk ensued on the subject, and the drift of opinion was to hold the meetings in the afternoon and continue them on to the evening.

Mr. Forsyth opened the discussion on Standard Freight Car Trucks. He intimated that a committee of the Master Car-Builders' Association had prepared the plan of a standard freight car truck for which they invite criticism. They expect, on hearing all the objections raised against their plan of truck, to be able to improve it so that its essential features may be adopted by the Master Car-Builders at their coming convention. There are already certain features of the truck approved and adopted, others are open for change. The points settled are: 1. That the truck shall be for a car of forty thousand pounds; 2. the axle will be the M. C. B. standard and the wheels to suit the truck; 3. wheel-base five feet; 4. journal-box bearing and wedge as already approved by the association.

The committee was instructed to arrange the truck with cross-channel arms, so that it could be used either with a swing bolster or rigid bolster. The points not settled are: Size and shape of arch bars; size of bolts through the boxes, and through the channels in arch bars; end casting through channels and arches; the bolster; the spring hanger; the brake-beam and the brake-shoe. Mr. Forsyth called on the members to express their views on these points.

President Verbryck: The plan calls for 3½ × 1 inch for the top bar and Mr. Miller's plan is 4 inches.

Mr. Robert Miller, assistant senior superintendent, Michigan Central Railroad, said his plan called for 4 inches, but it was only a suggestion. The principal point is, not to get at the idea of the committee particularly, but to get at a truck that will be acceptable to everybody. Among the things for criticism is the rigid center. Here a questionable point in my mind is the location of the spring. In most rigid-centered trucks the spring is located in the arch bar. Mr. Forsyth proposed to move it about to the same position as on a swing beam truck, and I thought that was one of the points that advocates of the rigid-centered truck would object to. Now, at the Buffalo meeting I found this objection was not raised; in fact some of them thought it was an advantage to put it nearer over the rail. If we would make a better truck in this way and strengthen it, there would be less likelihood of its getting out of square, which has always been an objection to the rigid-centered truck. To provide against this tendency the use of channel iron was recommended.

Mr. Mackenzie thought the principal object in moving the springs was to get the centers for the rigid trucks the same as those in the swing beam.

Mr. Miller: The usual size of arch bars is 3 × 1 inch or ⅞. A good many people thought that was not strong enough for the increasing loads and speed, so that the committee decided to increase the width to 3½ inches, using bolts of 1⅛ inch.

Mr. Hodge did not think four 1⅛-inch bolts strong enough to carry a 40,000 pounds load. They might do on roads like the Pennsylvania and Michigan Central, but they would not answer for the Western roads where the track is rough. For the last year and a half he was putting in eight ⅞-inch bolts, and found they gave entire satisfaction.

Mr. Miller contended that four bolts were sufficient. The two outside bolts carry the load, and the others are merely safeguards.

Mr. Forsyth asked if the members favored turning the second bar over and bending it down, taking the shear off the first top bar.

Mr. Snow has been in the habit of bending up the bottom arch bar and fitting it tight to the box so that there could be no pulling out. He had an idea that this strengthened the center. He uses arch bars 3 × 1⅛ inch. He does not think an inch bolt is large enough, and if he were going to have it 1⅛ inch he would have the channel bar. He would be in favor of having the bolt 1¼ inch and the arch bars 1⅛ inch.

Mr. Hodge thought it would be well to have the width and size of arch-bars defined, also the number and dimensions of each.

Mr. Torrens did not think 3½ inch bar, with an inch and quarter hole punched through it, enough. He favored a 4 × 1 inch bar.

Mr. Mackenzie favored a 4-inch bar and 1⅛ inch bolt. An inch bolt means an inch and quarter hole, and that removes a good deal of valuable iron and reduces the strength.

Mr. Pullman: On the C., R. I. & P. we drill them 1⅛ for an inch bolt, and have experienced no difficulty under 40,000 pound cars.

Mr. Mackenzie said the experience of all members is to have a great deal of trouble with broken arch bars, and they are too light or they would not break. We ought to put iron enough in the bars to carry a 40,000 pound car without danger of breakage. Four inches by 1⅛ inch would be the proper size.

Mr. Snow contended that the arch bar never broke till the bolt gave way, therefore light bolts were the cause of breakage.

President Verbryck asked if poor iron did not cause breakage.

Mr. Hodge though the weak point was the center bolts which he found always gave out first. Four 1⅛-inch bolts might be sufficient, but he doubted it. Cars ought to be run safely over the roughest track, and he did not think four 1⅛-inch bolts were sufficient for the loads they now had to carry. He would favor arch bars 4 × 1⅛ inch, and four 1¼-inch bolts, which, he thought, would give ample strength.

Mr. Torrence thought it likely that an arch bar 3½ × 1¼ would be sufficient to carry 40,000 pounds to the car, but the question is, will that be the stopping point?

In reply to a question from Mr. Stevens, Mr. Forsyth gave details as to the strain arch-bars and bolts would be subjected to under different loads, and indicated common causes of breakage. He believed the truck recommended would prove amply strong for the work it will be required to do.

Mr. Miller contended that four 1⅛-inch bolts are stronger than eight ⅞-inch bolts, the large bolt being placed where its strength is most available.

President Verbryck vacated the chair to speak on the subject of car loads. He argued that with our present road-beds and iron, a twenty-ton load is large enough, and that if loads were to be increased, bridges and rails ought to be strengthened. Loads of twenty tons are wearing our roads very much; and he did not believe it was good policy at present to design a truck for more than a 20-ton car. If the bolts holding an arch bar 3 × 1⅛ inch are kept tight and the bars made of proper iron, he believed there was no danger of their breaking.

Mr. Torrence: It is only a short time since our engines began to increase in weight. Track iron is about the same and bridges have not been made much stronger, so we have got to look to the subject of trucks as much as any thing. In the frequent interchange of trucks we often find little old trucks, made for ten ton cars, under a forty ton car, and there is where the trouble comes. We must make the car trucks stronger.

Mr. Miller agreed with the previous speaker. There are some trucks that they used to think would not carry more than ten tons, which have been carrying ten and fifteen tons since the tonnage was increased, and do it pretty well, too. He believed the factor of safety in the weight of iron proposed would carry a twenty ton load and breakage would be rare.

Mr. Turreff, C., C., C & I. Railroad, was in favor of heavy iron in the arch bars. He was satisfied they are not going to rest at 20 tons load. Whatever you may say against overloading it will be done. He favored a heavier truck.

President Verbryck thought Mr. Turreff ought to get his managers to do as he did with his about overloading. They charged double rates for all above the regular load and that soon stopped overloading.

Mr. Turreff said they, too, had tried that, but shippers eluded the order and the trucks broke all the same.

Mr. Johnson said that on the C., B. & Q. Railroad they have no difficulty in controlling the weight of load. Since Dec. 1 he has kept a record of broken trucks and gets his foremen to send in a sketch, showing the points where trucks break. Their upper arch bar is 3 × 1¼ inch and the lower 3 × 1 inch, and they have not had an arch bar break in the center or over the channel bar. He thought adding half an inch would be simply adding that to the factor of safety.

Mr. Fuller recommended 4 × 1¼ inch for the top bar and 4 × 1 inch for the lower one. He thought there was too much imperfect workmanship on our cars. He thought if more attention was paid to accurate fitting, and less lost motion was permitted in boxes and bolts, there would be fewer breakages.

Mr. Johnson moved that the meeting favor the truck with upper arch bar 3½×1¼ inch, and lower bar 3½×1 inch, which was seconded and carried.

President Verbryck called for opinions about bending up the arch bar end.

Mr. Snow favored heeling up the arch bar.

Mr. Miller thought a dowel pin was a better arrangement to prevent shearing of the bolts.

Mr. Fuller had experience with dowel pins, and condemned their use. The best remedy, in his opinion, was a good fit.

Mr. Bushnell argued in the same strain. He thought dowel pins, or turning up the end of the arch bar superfluous work. If there is a good fit of the bolts, he deemed that sufficient to prevent shearing.

Mr. Forsyth, in answer to a question, explained that the brakes on the truck under consideration were hung on the truck.

Mr. Hodge was decidedly opposed to this arrangement, and meant always to oppose it, whether it was carried by the majority or not.

Several other members expressed themselves adverse to the practice of hanging the brake beams to the trucks; and most of the speakers thought brakes hung in that way were not so efficient as those hung from the body of the car. Mr. Forsyth was questioned as to the reason why brakes were better hung inside than outside, and he answered that Mr. Westinghouse recommended the former plan. Mr. Mackenzie asserted that the truck spring makes the brake ride more easily than on the rigid truck.

Mr. Forsyth pointed out that their truck had an iron brake beam strongly trussed and supported by a good, heavy, strong hanger.

Mr. Snow did not see the utility of an iron brake beam when you can slide the wheels with a wooden one every time.

The subject for discussion at next meeting is "Balanced Valves."

End Platforms of Freight Cars.

The following circular of inquiry has been issued by the committee of the Master Car-Builders' Association, appointed to report on the subject at the annual meeting, to be held next month at Fortess Monroe, Va.:

To the Members of the Master Car-Builders' Association:

The committee appointed to report on the comparative advantages of the two methods of constructing freight cars with and without platform timbers or end sills projecting from the end of the car, requests your answers to the following inquiries; and in order that their report may be ready for your consideration at the next convention, they especially urge that replies be forwarded before May 15, as they will not be able to include any received after that date.

There are in general use in this country two distinct methods of framing the end floor timbers of freight cars. In all of the appliances for the ends of freight cars, such as dead-woods, couplers, draft riggings, steps, brakes and running-board extensions, these two methods have to be considered, and the details of the appliances arranged to suit either one or the other. Of a consequence, complete uniformity cannot be secured until either one or the other, or a compromise of both, is adopted by the Association.

The advocates of the method in which the platforms are dispensed with claim: Economy in first cost; minimum distance between cars enabling longer trains to be placed on shorter sidings, and facility for train-men in passing from one car to another.

The advocates for the platforms claim: Economy in repairs, as a broken end sill can be renewed without disturbing the end posts, bracing and covering of the car; also greater facilities in shifting cars in the yards, it not being necessary for the train-men to get up on top of the cars to apply the brakes, and in extreme cold weather train-men can ride on the platforms, where they are protected against the wind. A position of safety is also afforded them on roads having tunnels and through bridges, where they can be put out of danger and still have control of the brakes. Further, with the growth of business and the increased value of property in cities, and on docks, it becomes necessary to make curves so sharp that the corners of the cars are liable to strike. This liability and the resulting damage is prevented by the end platforms.

1. Please state how many freight cars belonging to the company which you represent are built with platforms, and how many without.
2. Which method do you prefer, and your reasons for the same?
3. What action you would advise the Association taking with a view to adopting either one or the other, or a compromise of both?

Answers to this circular should be addressed to Edward B. Wall, Chairman of Committee, Superintendent of Motive Power, Pittsburgh, Cincinnati & St. Louis Railway, Columbus, Ohio.

EDWARD B. WALL,
B. K. VERBRYCK, } *Committee.*
GEO. W. CUSHING,

Automatic Freight Car Brakes.

The following circular has been issued by the Committee of the Master Car-Builders' Association on this subject:

To the Members of the Master Car-Builders' Association:

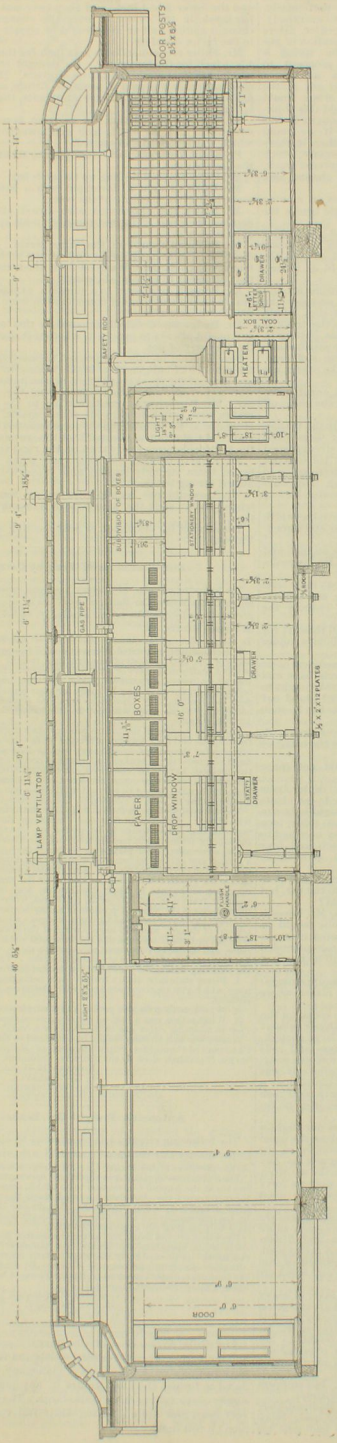
The Committee appointed to report on Automatic Freight Car Brakes at the Annual Convention to be held in June, 1885, request the members of the Association to send them the names, with a brief description, of any Automatic Freight Car Brakes adopted by the management of their lines, or, if not yet adopted, that may have been successfully experimented with.

Drawings are not asked for, as the Committee hope to visit and see in actual operation any brakes that members may specially commend. A prompt reply therefore is particularly requested.

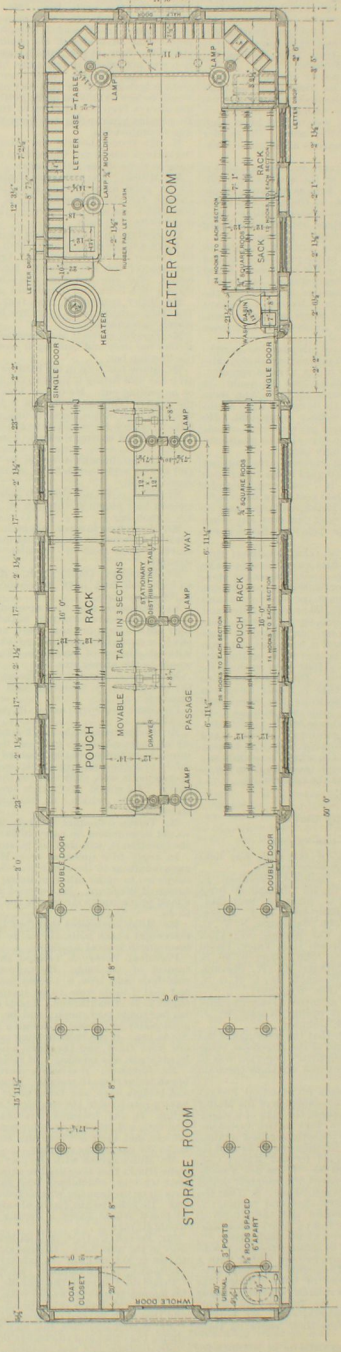
Replies should be addressed to Godfrey W. Rhodes, Chairman of Committee, Superintendent of Motive Power, Chicago, Burlington & Quincy Railroad, Aurora, Ill.

GODFREY W. RHODES,
GEORGE HACKNEY, } *Committee.*
B. WELCH,

THE E. D. ALBRO CO., of Cincinnati, report an active and increasing demand for hard woods and veneers. They have just received two cargoes of mahogany, and are prepared to furnish the finest grades in any quantity. Their supply of car ceiling stock is also large. The company are very busy, and are employing their full complement of men on full time.



Longitudinal Section.

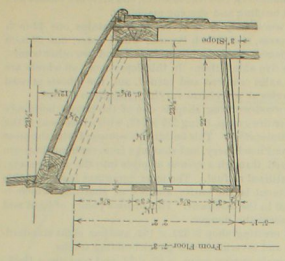


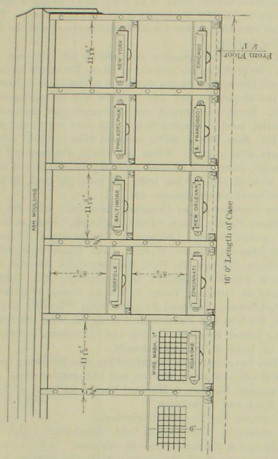
Plan.

UNITED STATES STANDARD FIFTY-FOOT RACK POSTAL CAR.

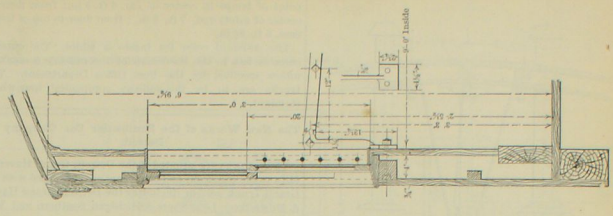
Designed by Charles W. Vickery, Superintendent Railway Mail Service, Washington, D. C.

(For Description See Page 64.)

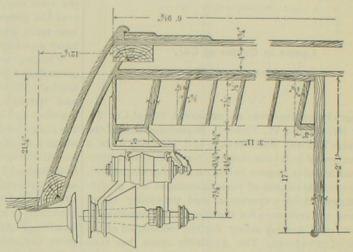


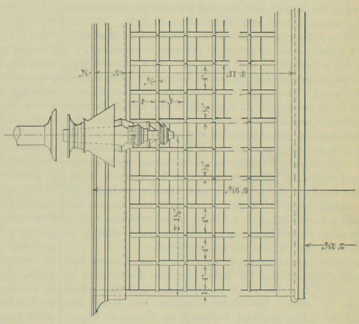


Section and Front View of Paper Case, Showing Subdivision for Small Mail Matter.

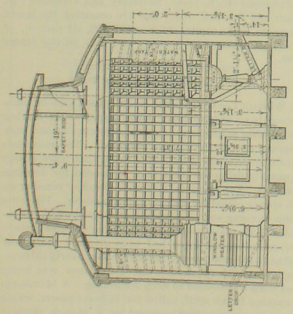


Section Through Windows.

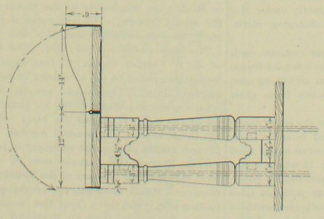


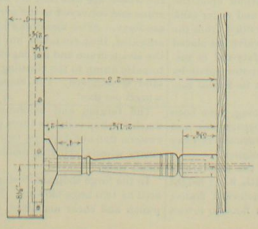


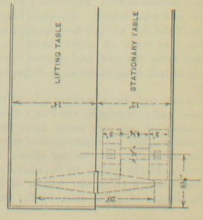
Section and Front View of Letter Case, Showing Position of Lamp.



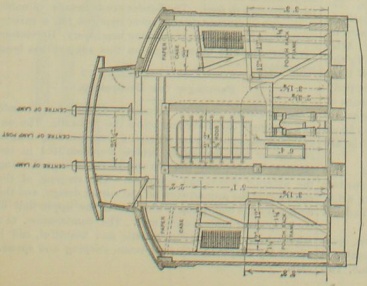
Section Looking towards Letter Case Room.



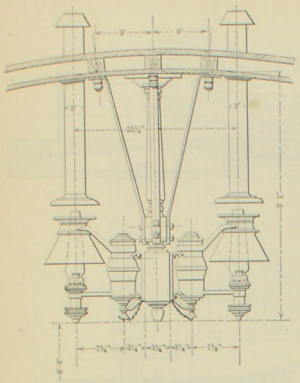




Details of Distributing Table.



Section Looking towards Storage Room.



Lamps in Center of Car.

(*See pages 62 and 63.*)

THE engravings illustrate an improved Postal Car designed by Mr. Charles W. Vickery, Superintendent of the United States Railway Mail Service, and intended to be a standard or model to which cars for this service will hereafter be conformed in respect to their interior arrangement. The improvements consist of various changes and modifications suggested by experience, and providing better facilities and conveniences for the expeditious handling of mail matter, and greater safety for the occupants of the car in case of accidents. The available space has been utilized to the utmost, and the best possible provision made for an ample supply and distribution of light. The details are so fully represented in the illustrations that only a brief reference to the principal features is necessary.

The car is lighted by Post & Co.'s No. 25 mammoth postal lamps, which are suspended from the car roof by turned wooden posts. There are two extra doors for convenience of exit in an emergency, a large one in the end of the mail storage room and a half-door under letter case table. The arrangement of paper boxes is somewhat different from what it is on the cars formerly in use. Provision for small mail matter is made by subdividing the four end boxes of each case. The lowering of the first row of letter case nearly to the table is a new feature designed for economizing space. The pouch and sack rack frames are labeled by means of neat, polished brass brackets with a slot in them for holding paper labels, the whole sliding on square rods, which hold the frames together.

The letter case consists of 45 vertical rows of boxes, and is 10 rows high, giving 450 boxes for the distribution of mail. Each box has 4″ × 4″ opening, and the whole case is 7¼″ deep. The slides dividing two boxes can readily be taken out and reversed by means of finger-holes, and one box can be used to correspond respectively for stations as indicated by front and back label. The letter drops for public mail are situated at different places from those on other cars, and are so arranged that letters dropped into them will slide into a box directly under the letter case table within easy reach of the stamping clerk. This is another feature of convenience.

The distributing table is made in three sections, each section resting on projecting shoulder of pouch-rack frame stand, and can be lifted up separately from adjoining one, thus facilitating the removal of the pouches from their respective places.

Directly over each pouch-rack frame are the paper cases, each consisting of 16 boxes, the four end boxes of each case are divided into subdivisions, to receive small mail matter, as already mentioned. The first 12 whole boxes of each case are provided with wire-gauze sliding gates, the lower portions of which have brass polished label holders; the continuous lower strip of case is also provided with brass hooks—two to each box—from which sacks are suspended when emptying one or all of the boxes, the contents of which can easily slide into the former upon the sloping bottom of case. There are a heater and water-tank for ice and wash water. The tank can be filled from the inside of the car; ax, saw and conductors' valve are placed within easy reach of postal clerks. A safety-rod is suspended from the roof, and secured to clear-story plate by means of iron strap-plates so as to prevent its lateral motion.

This car, and also a smaller one, 40 ft. long, have been adopted and approved by the Post Office Department, and a number of cars are being built by various railway companies under the supervision of the designer.

The dimensions of the car shown in the cuts are as follows:—Inside length, 50 ft.; inside width, 9 ft.; height in the clear, 9 ft. 4 in.; length of pouch-rack frame, 16 ft.; length of paper case, 16 ft.; from floor to lowest point of lamps in center of car, 6 ft. 3 in.; from floor to center of safety-rod, 7 ft. 3 in.; from floor to top of letter case, 6 ft. 9¼ in.

The standard color for inside is white. The outside color is left to the discretion of the railway companies unless specified by the Post Office Department. The trucks are to be the railway companies' four-wheel standard.

The New Works of the Peninsular Car Company at Detroit.

These works are situated at the Detroit, Grand Haven & Milwaukee junction, and at present are connected with the Grand Trunk system (including the Detroit, Grand Haven & Milwaukee), Lake Shore & Michigan Southern and Wabash railroads.

The grounds are well drained by a complete and costly system of sewerage. The water supply is furnished by the city, and is conducted through a six-inch pipe into all the buildings and leading to a large reservoir having a capacity of 40,000 gallons. The company have laid an independent system of pipes for use in case of fire, against which there is very little protection afforded by the city. This system is operated by an immense steam pump located in the main engine room. There are six fire-plugs distributed over the grounds, and the fire equipment consists of three hose reels, a large quantity of two and one-half inch hose, hand grenades, fire buckets, etc.

Winding through the building and surrounding the grounds is a perfect system of standard and narrow-gauge tracks. These are used in conveying the raw material in and through the various shops, until it is finally put together and sent out as a perfect car. The shops in which the rough work is done are situated at the southern extremity of the premises, and the various materials used in manufacturing cars are transported from building to building until the erecting shop is reached, where they are put together to form a car. All the buildings are so situated that each successive transfer is made in a forward direction, thus effecting a vast saving in the matter of handling. All the buildings are built of brick, with truss roofs, the wood-working shops having basements.

The cleaning shop is 50 × 50. Here are brought the castings from the soft casting foundry, that the sand and burrs may be removed from them. It contains cinder and cleaning mills, emery wheels, chipping benches and such other machinery and tools as are necessary for the final preparation of the castings. The cleaning mills are so arranged that the process of filling and dumping them requires but a moment of time. They are fitted with two doors, on opposite sides, so that while one opening permits the iron to fall into a receiving car, the other is at the proper angle to allow the contents of another car to be dumped into the cylinder. This is the only mill of its kind in practical use in this country, and is the invention of one of the employés. Adjoining the cleaning shop is the soft casting foundry, the dimensions of which are 132 × 146. It is equipped with a "D" Colliau cupola, 69 feet high, having a 62-inch shell, 48 inches inside of lining, four feet legs, and having double landing doors. In this foundry all the miscellaneous castings other than car wheels are made. The building is connected with the wheel foundry by an elevated track, so that in case either of the elevators used in hoisting the iron to the cupola should break, the other may do service for both buildings. In rear of the foundry are the core and charging rooms, and the foundry engine room. The core oven is here also, where the cores are baked until they become hard and fit for use. In the engine room is a Buckeye engine of 100 horse-power, used in driving the machinery in the cleaning room and also the cupola blowers. The core room is 31 × 48; charging room, 36 × 31; engine room, 31 × 48.

The wheel foundry is 116 × 102. The equipment consists of a "B" Colliau cupola, 69 feet high from bottom of foundation plates to top of stack; 72-inch shell; 58 inches inside of lining. This cupola has an air box 10 feet high, with a spiral diaphragm in the air chambers. The principle of the stack is to heat the blast before it passes into the inside sheet. The benefits derived from this are improved quality of iron and economy in fuel. It is the only cupola having this feature now in use and is giving good satisfaction. In rear of the foundry, in the charging room, is a steam drop-ball for breaking car wheels. The molten iron is conveyed from the cupola to the flasks in huge ladles swung from an overhead crane operated by steam and controlled by a system of wire brakes. After the wheels are cast they are lifted from the flasks by this crane and conveyed to the annealing pits, of which there are forty. After remaining in these pits until properly annealed, they are taken out and conveyed by means of the steam crane and an ingenious carriage having an automatic dump to the cleaning room, where all superfluous sand is removed. The capacity of the foundry is 225 wheels per day.

The forging and machine shops are 362 × 82. The machine shop contains three planers, four lathes, four bolt cutters, five nut tappers, two arch bar drills, four drills, emery wheels, grinding machines and other miscellaneous small tools.

In the forge shop are 25 single and 12 double fires, operated by two huge blowers. There are also three combined punch and shear machines, one upsetting machine, two steam hammers, two bolt-headers, one arch-bar former and several bending and shaping machines.

The truck shop is 92 × 50, and contains one 42-inch wheel press, one 42-inch Bement wheel borer, one 33-inch wheel borer, one 33-inch wheel press, and two other borers, besides five axle lathes. In this department all wheels are bored, axles centered and turned, and the wheels pressed upon axles at a pressure varying from 25 to 40 tons.

The wood-working shop is one of the largest buildings of the entire group, being 252 × 142, with a basement of the same dimensions. This building is equipped with the most improved machinery, and shavings from each machine are conveyed through a system of pipes into the boiler-room, to be utilized as fuel. The most important feature of this department is the entire absence of shafting, which is situated in the basement. This insures plenty of light and also lessens the danger.

The erecting shop is 322 × 162, and has eight standard-gauge and several narrow-gauge building tracks.

The main engine room is 65 × 22, and contains a Buckeye engine of 500 horse-power and a huge pump. This engine furnishes power for all departments except the soft casting foundry.

At present the company are turning out 20 cars per day. To perform this amount of labor, 700 hands are employed, but as soon as the works are in full blast and turning out 30 cars per day, this number will be increased to 1,500. Every car turned out represents one car-load of material used in construction. Box cars cost from $400 to $450; flats, $300 to $350; caboose, $750 to $800; refrigerators, $750 to $900. When the works are running full capacity, there will be used each day 125,000 feet of lumber, 45 to 50 tons of bar iron, 120 tons pig iron, 20 tons axles, besides nuts, brasses, etc.

The Peninsular Car Company have built cars for the Northern Pacific, Union Pacific, Atchison, Topeka & Santa Fé, Central Pacific, Chicago & Northwestern, Chicago, Rock Island & Pacific, Wabash, Lake Shore & Michigan Southern, Chicago, St. Paul, Minneapolis & Omaha, Chicago & Atlantic, Standard Oil Company, Ohio Central, Columbus, Hocking Valley & Toledo, Rome, Watertown & Ogdensburg, Portland & Ogdensburg, Wheeling & Lake Erie, Rochester & Pittsburgh, Chicago & West Michigan, Long Island, Southern Central and Cincinnati, Indianapolis, St. Louis & Chicago railroads.

They have contracts for furnishing the following cars:

Wabash—200 stock, 390 box and 10 furniture cars.

Fremont, Elkhorn & Missouri Valley Railroad—200 flat, 500 stock and 15 cabooses.

Northern Pacific—50 refrigerators.

Kansas City, Fort Scott & Gulf—10 cabooses.

Chicago & Northwestern—40 cabooses.

Chicago, St. Paul, Minneapolis & Omaha—200 stock and 15 refrigerators.

This company is the successor of the old Peninsular Car Works, organized in 1879, and is composed of the following gentlemen: Frank J. Hecker, President; Allan Shelden, Vice-President; C. L. Freer, Secretary and Treasurer; R. A. Alger and James F. Joy. The five constitute the Board of Directors. The capital stock is $300,000, all paid in, of which Mr. Hecker owns $100,000 and each of the others $50,000.

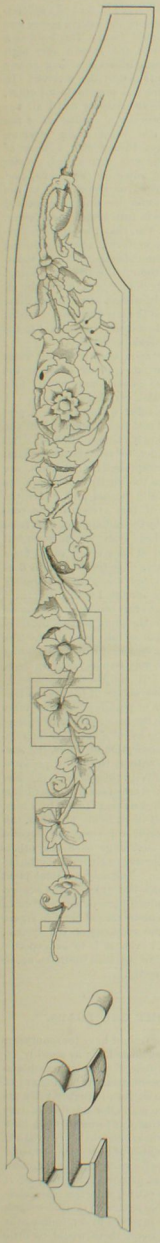
Power for Wood-Working Tools.

Mr. William Lee Church has recently been making some experiments to ascertain the power required for driving wood-working machinery. Several very curious and very interesting results have been obtained. The most important feature of the tests seems to be that more power is required to drive the tools than is needed for dressing the lumber. For example, a 12-inch matcher running on 6-inch spruce called for nearly 15½ horse-power. The same machine running empty required 10 horse-power. It required a 31.2 horse-power to start a 24-inch double surface planer, but after full speed had been attained the power fell off to 12.48 horse-power. In other words, nearly 19 horse-power extra was required while the planer was being started than was needed to keep it running. A 14-inch rip saw, cutting 1-inch stuff, called for 5½ horse-power, which is almost the same as that required by a 24-inch circular resawing machine splitting 6-inch pine, and varies but a small fraction over the power required by a 60-inch circular resawing machine. The difference is probably due to the difference in feed. The figures are especially valuable as they show accurately the power required for a variety of different kinds of wood-working machinery. Heretofore very little definite information on this subject has been accessible.

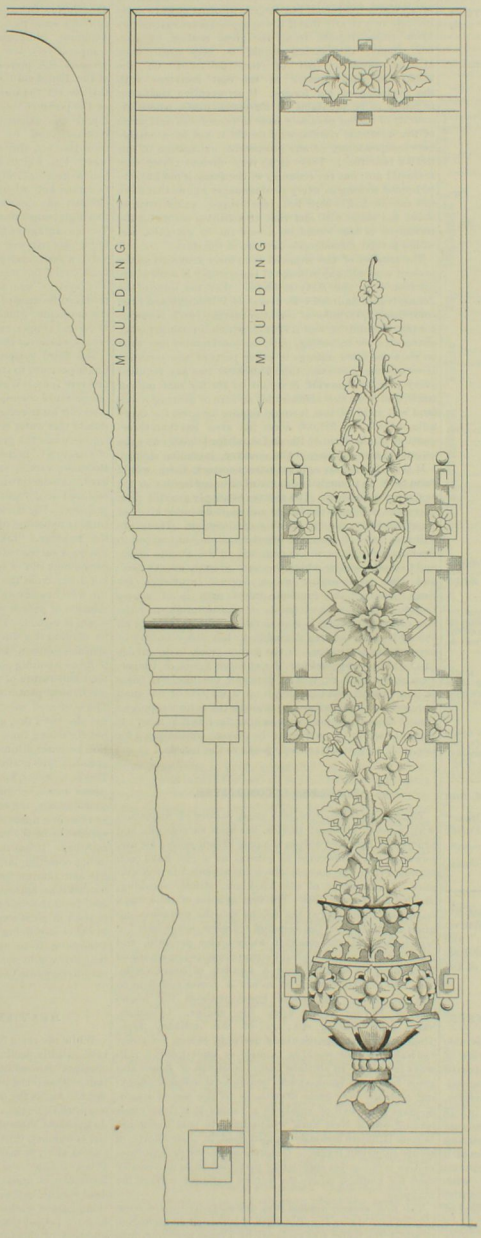
Passenger Car Decoration.

Our last issue contained decorative designs for the side of a passenger car above and below the belt-rail. The engravings on opposite page represent corresponding designs for corner and door-posts, which were omitted in the previous illustrations, the two sets of engravings showing the exterior decoration complete. The striping of the sides forms the groundwork of the corner design, and the design for the door posts is the same as the upper half of corner posts, running each way. The combination, as a whole, is very harmonious, artistic and beautiful, and is admirably adapted to drawing-room, sleeping and special cars.

DESIGNS FOR EXTERIOR DECORATION OF PASSENGER CARS.



Letter Board.



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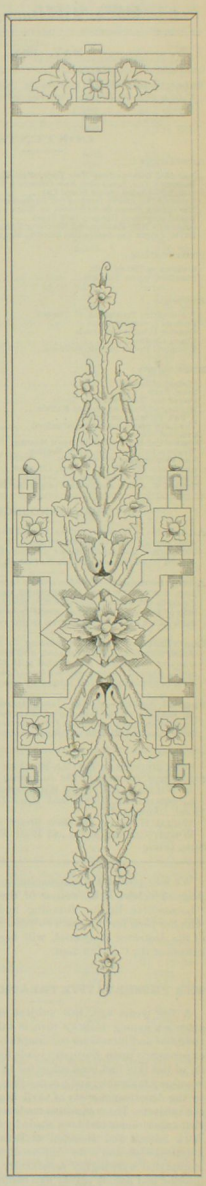

Door Post.

NATIONAL CAR BUILDER

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CONTENTS.

EDITORIAL ANNOUNCEMENTS.

Addresses.—*Business letters should be addressed, and drafts and money orders made payable, to* THE NATIONAL CAR-BUILDER. *Communications for the attention of the Editor should be addressed* EDITOR NATIONAL CAR-BUILDER.

Advertisements.—*Nothing will be inserted in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *The editorial department will contain our own views and opinions; and the rest of the reading matter, aside from advertisements, will be such as we consider of interest to our readers.*

Contributions.—*Articles relating to railway rolling stock, construction and management, and kindred topics, by those who are practically acquainted with these subjects, are especially desired. Also early notices of changes in railroad officers, organizations and names of companies.*

Special Notice.—*As the* CAR-BUILDER *is printed and ready for mailing on the last day of the month, advertisements, correspondence, etc., intended for insertion, must be received not later than the 25th day of each month.*

SUBSCRIPTIONS *to the* CAR-BUILDER *will be received, and copies kept for sale, at the following places:*

A. WILLIAMS & CO., 283 *Washington St., Boston, Mass.*
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WILLIE H. GRAY, 306 *Olive Street, St. Louis, Mo.*
ROBERT CLARKE & CO., 65 *West Fourth Street, Cincinnati, Ohio.*

WE take pleasure in announcing to our readers that Mr. Angus Sinclair, M.E., author of the popular treatise on "Locomotive Engine Running and Management," and who has been for the past two years on the editorial staff of the *American Machinist*, will hereafter be one of the editors of the CAR-BUILDER.

THE PRESERVATIVE TREATMENT OF TIMBER.

A few years ago, this subject attracted considerable attention among railway men in this country in view of the great and increasing consumption of ties. The reported experiments upon European roads for testing the durability of ties that had been subjected to preserving processes, were very favorable, and a committee was appointed in 1879 by the American Society of Civil Engineers to investigate the subject. The committee made a report in 1883, stating that experiments had been made by the Vermont Central, Rock Island, and Houston & Texas Central roads, on a limited scale and with imperfect apparatus, but with results that were highly satisfactory. It was found that inferior and porous woods like hemlock and short-leaved Texas pine, after expelling the sap and filling the pores with dead oil or chloride of zinc, under pressure, were rendered far more durable, the pine remaining sound after seven years of service, and the hemlock lasting fifteen years with but slight indications of decay, or say twice as long as an untreated oak tie would last. The creosoting process was also found to be very effective for preserving timber used for piles, and for the foundations of masonry and heavy structures, but it is said to be much more expensive than the zinc or oil.

Since this report was made, we have heard very little about the artificial preservation of timber in this country, and the probability is that the experiments have either been abandoned or are conducted on a very limited scale, so far as railway ties are concerned. There are unfortunately no very reliable statistics as to the economy of preservative treatment, but the experiments already made indicate very clearly that if it was applied more extensively upon roads remote from the great sources of timber supply, the saving would be very great, even at the present cost of ties delivered on the track, and still greater as the cost increases with the depletion of our forests. If preservative treatment is found to be profitable on European roads, where the scarcity of timber naturally leads to a careful investigation of the economic results, why should it not be profitable here independently of any prospective exhaustion of our timber resources? There is no very obvious reason why it should not, but the economy of the thing is not likely to be heeded so long as every road manager knows that more ties can be had where last year's supply came from, at about the same cost, and that establishing plants for the treatment of ties would be a new rut to get into, and would involve considerable expense at the start.

The number of ties required for yearly renewals on the present total railway mileage of the country is somewhere between fifty and sixty millions. For the lines of the Pennsylvania Railroad system east of Pittsburgh and Erie, comprising 2,000 miles of road, the average yearly renewals for 1882, '83 and '84, was 1,538,279, which, in consequence of the superior ballasting, must be considerably less than on the same track mileage in other parts of the country. If we assume, however, that 55,000,000 ties are required every year for renewals, it would be 380 for each mile of track, and if we also assume that an acre of average woodland will yield 100 ties, it would require 3.8 acres for every mile of track, or 551,000 acres (an area less than three-quarters of the State of Rhode Island) for 145,000 miles, the estimated total mileage of the country, including sidings.

If these figures are approximately correct, there would seem to be no immediate danger of a timber famine so far as ties are concerned. The sources of supply are still quite extensive, although the better and more desirable kinds of standing timber may be steadily diminishing. There are still vast areas of primitive forest remaining untouched in the Southern States, in Canada, and on the Pacific coast, and to these must be added the new growth everywhere, and also tree-planting as a special provision for ties. Much of this immense forest area is of course remote from the chief points of consumption, and the cost of transportation is considerable. Yet, in view of all this, it is none the less desirable to test the economy of preservative treatment. If the cost of track maintenance can be reduced by making the cheaper kinds of timber, such as hemlock, fir, spruce, pine and the like, last twice as long as untreated oak ties, it is a matter of no small importance to the railways, although the future supply of timber should continue to be as abundant as it is now. It would lessen so far as it went the present consumption for ties, and to that extent help preserve the forests.

FIRELESS LOCOMOTIVES.

The fireless locomotive, in a great variety of forms and with several different liquids, has been successfully and practically operated during the past fifteen years. Its use, however, has not become as general as might have been expected from the success which has attended its performance. Locomotives of this kind are, strictly speaking, divided into four classes. The first in point of time was a compressed air engine; the second was the ammonia engine; the third was the so-called "fireless locomotive" in which the heat was stored in water under pressure, and the fourth is one in which the steam pressure is maintained by turning the exhaust into a solution of caustic soda. The aim in all of them is to secure a power sufficient to run the motor for several hours without the necessity of having a fire upon the engine. Cylinders, valve gear, cranks, etc., are of the ordinary type. These engines are particularly useful in mines, for street railways, and for working tunnels or underground railways in cities. In all these cases the escape of steam and gases from the smoke-stack becomes exceedingly annoying, and are very great drawbacks to the use of steam. So great is the evil of smoke in a tunnel that those roads leading out of New York which have to pass under the Berjen Hills are seriously handicapped in their efforts to secure suburban traffic. Unfortunately, the fireless locomotive is not as yet sufficiently perfected to be universally used for haulage where the smoke nuisance can not be tolerated.

The first system applied was undoubtedly that of compressed air. In its simplest form it consisted of an engine in which the boiler was replaced by a large reservoir, into which the air was pumped at a high pressure. The early inventors were unable to make this system work successfully, on account of imperfect compressing machinery and the liability of the engine to freeze up. The expansion of the air when released, caused the exhaust pipes to become miniature ice machines. Years ago, one of these engines was tried on the old Ninth Avenue elevated road in New York, and the story goes that it froze itself up and brought the experiment to an untimely end. More recently, by the use of improved compressing machinery and suitable reducing valves, compressed air locomotives have been successfully employed, notably at the Mount Cenis tunnel and in other similar works in Europe.

Lamm's ammonia engine was brought out about 15 years ago, in New Orleans, and was worked in that city successfully for some time. In this engine the motive power was ammonia compressed to a liquid form. This boils at a comparatively low temperature, and gives a very high pressure, the pressure remaining constant so long as any of the liquid ammonia is contained in the receiver. In this respect, the ammonia engine was superior to any other, as the pressure was uniform in the receiver until all the liquid was exhausted. To prevent a cooling off of the receiver, and to prevent the vapor from escaping into the air, the exhaust was turned into a tank of water by which the receiver was surrounded. Water has a great affinity for the vapor of ammonia, and becomes hot when it is allowed to absorb it. As the exhaust was absorbed by the water, the water was heated to a high temperature, and this in turn heated the receiver. The advantage of this system was, that the pressure during a long trip was practically uniform, and no reducing valve was necessary. The ammonia absorbed in a water-tank could be recovered without difficulty by heating. The system was a most ingenious one, and was not introduced because of the difficulties encountered in handling the ammonia, which converted the oils into soap, corroded brass and copper rapidly, and became unpleasant to the senses whenever the slightest leak occurred.

The third system depends upon the power of water under pressure to store up heat and give off steam as the pressure falls. Water is heated in stationary boilers to a temperature corresponding with a very high pressure. A reservoir on the engine is then filled with water. A portion of this water is converted into steam and used in the engine while the pressure is slowly falling. Indeed, a fall of pressure is necessary in order to produce the steam. Reducing valves, as in the compressed air machines, are used. At the terminal stations the partly cooled liquid is replaced by a fresh supply fully heated and under the pressure. The inconvenience of this system is the continuous reduction of pressure by the radiation of heat from the receiver. Like the other systems, however, it has been successfully operated on lines which called for a continuous run of several hours. The fourth system does not differ from the last mentioned, except in surrounding the water reservoir by another one filled with a saturated solution of potash or soda. Into this solution the exhaust steam is turned. The effect is the same as that obtained by turning the ammonia exhaust into the water. The alkaline solution is heated to a temperature corresponding to its own boiling point, which may be many degrees above the temperature of the steam. It is upon this apparently mechanical paradox that the advantage of the system lies. The saturated solution of soda or potash practically takes the place of a fire, and enables the boiler proper to be kept hot for a long time without the use of a fire. As the solution becomes diluted by the absorption of water, the temperature falls gradually, and with it the boiler pressure. This is, however, long delayed. With this system a 15 horse-power dummy engine has been worked for five or six hours continuously, the engine itself weighing from 8 to 9 tons, and hauling a fair load. Of all the systems proposed, this appears to be the most practicable for street or elevated railways. It has the greater advantage over any others in not requiring large and expensive engines at the terminal and intermediate stations. The only terminal plant needed is an apparatus by which the water can be evaporated from the soda solutions which have to be boiled down to their original strength. No figures are at hand in regard to the cost of doing this, or the economy of the system. Reasoning from analogy, however, it is to be expected that this would not require more coal than would be necessary to generate the steam directly.

HEAVIER FREIGHT CAR LOADS.

While the rates for carrying freight have for some years been steadily declining, the car loads have as steadily increased. Something must be done to cheapen transportation and keep the margin of profit from vanishing out of sight. About the only way to do this, if higher rates are out of the question, is to make a smaller number of cars do the same amount of work that was formerly done by a larger number, thus reducing the number to be repaired and looked after, as well as the number of new cars to be built. If the stronger and larger cars for carrying the increased loads can be built with a less proportionate increase of dead weight, as they certainly can be, there is at least something gained on this score. The reduction of dead weight, however, is not the only point involved in determining the question of economy. If it were, there would be little room for debate. It seems quite reasonable that with steel rails, better rail joints, improved road beds and a gradual lessening of curves and grades, a better service should be got out of cars. Yet when the subject of increased carrying capacity comes up for discussion, as it frequently does at car-builders' meetings,

there is considerable clashing of opinion, and the longer the discussion continues the more complicated the problem becomes in respect to the vital point as to whether there is any very great amount of saving in the long run in making all freight cars of 20 tons capacity, saying nothing at present about 25 and 30 tons, which are as yet among the future possibilities. There is obviously a limit to the economy of increased loads, and as that limit cannot be determined on the basis of any existing data or experience, it will be well to make haste slowly and wait for further returns.

It is held by some that the average load carried in cars upon any given line of road, should determine the capacity of the cars, if a uniform standard is to be adhered to. It has been said upon good authority that the average east-bound car load on the New York Central is only 14 tons, and the west-bound load only 8 tons. If this is so, it is evident that if the bulk of the road's freight equipment should consist of 25 or even 20-ton cars, a great deal of non-paying weight would be hauled, unless the tonnage could be concentrated in a less number of car loads to raise the average load to a much higher figure. Or, in other words, whatever cars are used, their average capacity must bear an approximate relation to the average load, in order to avoid wasteful expenditure in running. This is practically illustrated in the coal traffic. The weight of loads from the starting points is uniform, and the capacity of the cars can be made to conform to the weight, be it more or less. But with miscellaneous freight there is no such uniformity, and a positive loss is inevitable when the capacity of cars is greater than the average load, unless it can be shown that the repairs to rolling stock and track are enough less to more than off-set the cost of hauling the superfluous weight. At present there is no reliable data for doing this?

It is asserted with a great deal of confidence by the advocates for 25 and 30-ton loads, that a car can be built strong enough to carry any load that can be put on it. This is very true, and if it was the only point to be considered the question could be settled in five minutes. It is only when the economical bearings of the problem are looked into that railway men find themselves at sea for the lack of information about ever so many things relating to the comparative economy of light and heavy cars and light and heavy trains—a kind of information which is yet to be acquired from experience. We need not refer to the numerous points and conflicting theories that are sure to crop out whenever the subject is discussed at railway club meetings.

There is one important aspect of the question, however, which we will not pass over, and that is the speed of freight trains. It is generally admitted that a much higher speed than the present average is necessary in order to cheapen the cost of transportation, and that this increase in speed in connection with heavier car loads will be productive of a great saving by the running of a greater number of trains within a given time. Dispatch in the transmission of freight is very important both to shippers and carriers, provided it don't cost too much. It is certainly practicable to run freight trains at the rate of 25 or 30 miles an hour under favorable conditions. The trains must not be too heavy, the track must be first-class, and the grades and curves moderate. It is said, even, that the cost of repairs to the cars alone, at such rates of speed is less than at the ordinary rate of 12 miles an hour. But it is manifest that trains of average length, or exceeding the average, made up of cars with loads ranging from 20 to 30 tons, can not be run at maximum fast freight speed without more effective brake appliances for controlling them than are now in use.

The increase of car loads is evidently a matter that can not be prematurely forced. It must bide its time. So far as cars of greater capacity can be used to advantage for through or local freight, they will be forthcoming to the extent that they are wanted. The 20-ton cars have come into general use because the old 10-ton cars were found to be inadequate to the requirements of traffic resulting from the increase of tonnage and improved condition of the roads, and it is altogether probable that they may in their turn give place one of these days to 30 or even 40-ton cars.

CHECK CHAINS.

The subject of check chains has recently been brought to the attention of car-builders, and many arguments have been advanced to show that if made shorter they would be much more valuable. Attempts have frequently been made to show accurately how much slack is needed for a check chain, and tables have been caculated to several places of decimals showing in inches just how much side motion the end of a truck has when passing curves of different radii. No deductions can be based upon such figures for several reasons. It is fallacious to suppose that the long radius curves are the only ones around which a car has to pass. Yards are full of sharp curves around which cars must be moved every day, and it is out of the question to think of unhooking all the chains each time a car is run into the yards. In almost any yard curves will be found which will throw the corner of a truck five inches or more out of its normal position. Not long since we measured the trucks under a passenger car which was standing on a curve in a yard. The eyes of the chains were 11 ft. 6 in. apart. The car was 56 ft. 8 in. long over the body. The truck was 7 feet spread and had 42-inch paper wheels. The check chain eyes on the truck, under these conditions, showed from 5½ to 6 inches change of horizontal position due to the curve. This was, however, with the body in a state of rest. The vertical motion of the springs on the equalizer was ⅜ of an inch, and the total spring motion upward of 1¼ inches. These figures do not represent the total motion, because in passing curves the swing motion comes into action and the outside springs are compressed, while those inside are to a certain extent relieved. The actual slack of the chain was but 5½ inches. This is said to be just enough to allow the cars to pass around the shortest curves. They then become taut.

Examined in another light, the subject hardly appears worth the extended consideration which it has received. In order to allow a truck to pass around curves it is necessary to permit it to move through a certain angle, and this is determined by the shortest curves. Until the truck reaches this angle the check chain will be of no service. When off the track the truck must either guide itself or be restrained by the chains. When it has deviated so much as to be held by the chains, it will stand at a considerable angle to the car. It only requires a few measurements or a moment's calculation to show that before the car has passed over its own length the truck will be pretty fairly off the ties on one side or the other.

Practically, little advantage can be gained from check chains applied in the very best manner. Their range of use is at best exceedingly limited. In some of the cases where they have been supposed to be beneficial, it appears on examination that the chains themselves had nothing to do with holding the trucks. It is a question in the minds of many car-builders whether it is not best to let a truck go the moment it is off the rails. Quite as many cases can be cited where this is best as of the opposite kind.

THE Western Railway Club, of Chicago, is one of the youngest organizations formed by railroad men for mutual assistance, but it possesses a vigor that few of the old associations can eclipse. Kindred aims, tastes and interests make an excellent cord to bind an association of men together, and we wonder that organizations similar to this Club are not more numerous in railroad centers. Few cities could supply a good membership for a single branch of railroad men who were likely to discuss varied questions connected with the operating of railroads; but when a club embraces all departments of the railroad world, the personnel for a good organization is easily obtained. Apart from the facility for obtaining members for a general railroadmen's club there is another advantage inherent to such a body, for it can discuss intelligently a wide range of subjects that serve to keep up the interest in the meetings. A car-builders', master mechanics', superintendents', train-dispatchers', train masters' or road-masters' club must necessarily deal with a limited range of subjects, but when a club is formed that embraces all these officers, the members are not compelled by necessity to discuss threadbare themes. Then the views of a superintendent or train master regarding matters connected with rolling stock, may suggest valuable points to the car-builder and master mechanic, while their views, on the other hand, respecting traffic operating may be of service to those interested in that department. Interchange of views on every railroad appliance and practice by all departments of railway officers can not fail to widen the perceptions of all concerned.

Association Meetings.

The *Master Car-Builders' Association* will hold its annual convention at the Hygeia Hotel, Old Point Comfort (Fortress Monroe), Va., beginning on Tuesday, June 9.

The *Railway Master Mechanics' Association* will hold its annual convention in Washington, D. C., beginning on Tuesday, June 16.

The *Car Accountants' Association* will hold its annual convention in Minneapolis, Minn., beginning on Tuesday, June 23.

PERHAPS the richest train that has passed over any road in this part of the country (says a Western newspaper), was that which went over the Hannibal & St. Joe one day recently. The train was composed of two cars of gold bullion, three cars of silver, eight cars of silk, and four cars of tea. The gold and silver were from Colorado, destined to the Philadelphia Mint. The silk and tea were from California, going to New York. A Pennsylvania paper, not to be outdone by the Westerner, claims that the *longest train* ever seen on the Lehigh Valley road was one that passed over that thoroughfare about the same time the *richest train* was coming East over the Hannibal & St. Joe road. It consisted of 123 eight-wheel coal cars, all loaded, and was drawn by a single engine.

The *Railway Engineer*, of London, has of late copied some of our editorial articles without giving the usual credit. In calling attention to this oversight, we take pleasure in saying that in all other respects the "Engineer" is one of the most welcome and valuable of our foreign exchanges.

Trial of the Widdifield & Button Automatic Freight Car Brake.

Trial made on the Lehigh Valley Railroad, between Bethlehem and Glendon, Feb. 19, 20 and 23.

Train composed of 12 box, 12 flat and one tool car, W. & B. brake attached to 10 box cars, and to the tender and driving wheels of the engine. Weight of train (about) 550 tons. Length of train (about) 890 feet. Box cars empty, flat cars loaded. The stops in all cases were made beginning at the mile post. In al cases where the hand brakes were used they were applied to as many cars as possible by two brakemen. The speed given is the "approximate speed." All of the cars and the tender of the engine were equipped with the hand-brake.

Mile posts.	Speed per hr., miles.	Time of stop.	Distance, feet.	Grade per mile.
First Run.—W. & B. brake on house cars and on the engine.				
71	25.7	Not recorded.	754	1.8 ft. dec.
70	30.5	33 sec.	620	1.5 ft. dec.
68	37.5	44 "	1,190	21.1 ft. dec.
66	35.7	35 "	782	Level.
64	30.0	55 "	1,350	2.3 ft. dec.
Return Trip:				
64	22.2	40 "	890	2.3 ft
66	25.7	60 "	1,430	Level.
68	24.0	45 "	950	21.1 ft. asc.
70	35.7	55 "	1,350	1.5 ft. asc.
Second Run.—Hand brake on cars, W. & B. brake on engine.				
71	24.0	45 sec.	755	1.8 ft. dec.
70	22.2	45 "	1,115	1.5 ft. dec.
68	30.0	55 "	1,910	21.1 ft. dec.
66	35.7	45 "	1,270	Level.
64	37.5	50 "	1,445	2.3 ft. dec.
Return Trip:				
64	24.0	Record of the time	1,190	2.3 ft. asc.
66	25.7	was not kept on	1,400	Level.
68	35.7	this trip.	1,205	21.1 ft. asc.
70	22.2		1,350	1.5 ft. asc.
Third Run.—Hand brake, used on cars and tenders. No other brake used.				
71	20.5	55 sec.	1,010	1.8 ft. dec.
70	30.5	53 "	950	1.5 ft. dec.
68	35.7	63 "	1,535	21.1 ft. dec.
66	24.0	54 "	1,190	Level.
64	37.5	62 "	1,400	2.3 ft. dec.
Return Trip:				
64	22.2	53 "	1,055	2.3 ft. asc.
66	25.7	57 "	1,190	Level.
68	22.2	40 "	755	21.1 ft. asc.
70	22.2	49 "	890	1.5 ft. asc.
Fourth Run.—W. & B. brake on cars only. Hand brake on tender.				
71	24.0	53 sec.	920	1.8 ft. dec.
70	22.2	40 "	725	1.5 ft. dec.
68	37.5	58 "	1,385	21.1 ft. dec.
66	22.2	50 "	1,145	Level.
64	37.5	56 "	1,295	1.5 ft. dec.
Return Trip:				
64	25.7	55 "	940	2.3 ft. asc.
66	25.7	77 "	1,640	Level.
68	25.7	53 "	1,055	21.1 ft. asc.
70	37.5	74 "	930	1.5 ft. asc.
Fifth Run.—No brake of any kind used.				
71	22.2	4 min. 7 sec.	3,650	1.8 ft. dec.
70	15.4	3 " 10 "	2,285	1.5 ft. dec.
68	25.7	5 " 12 "	7,190	21.1 ft. dec.
66	22.2	3 " 57 "	3,680	Level.
64	25.7	5 " 35 "	6,260	1.5 ft. dec.
Return Trip:				
64	22.2	2 " 15 "	2,422	1.5 ft. asc.
66	Train flagged.	No record made for this stop.		Level.
68	25.7	2 min. 55 sec.	2,837	21.1 ft. asc.
70	24.0	5 " 17 "	4,067	1.5 ft. asc.
Sixth Run.—W. & B. brake on engine and tender. No other brake used.				
71	24.0	1 min. 36 sec.	1,700	1.8 ft. dec.
70	22.2	1 " 38 "	1,685	1.5 ft. dec.
68	37.5	2 " 39 "	4,010	21.1 ft. dec.
66	25.7	2 " 1 "	2,390	Level.
64	Train flagged.	No record made for this stop.		1.5 ft. dec.
Return Trip:				
64	25.7	1 min. 55 sec.	2,360	1.5 ft. asc.
66	25.7	2 " 12 "	2,600	Level.
68	25.7	1 " 38 "	1,760	21.1 ft. asc.
70	24.0	2 " 16 "	2,630	1.5 ft. asc.

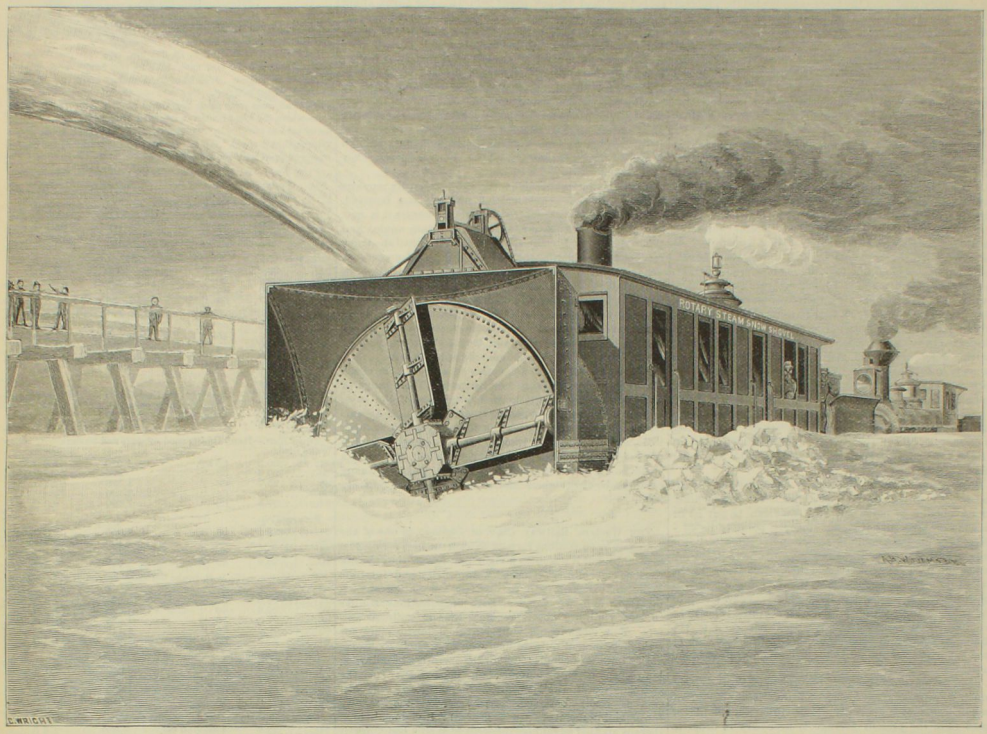
Train of 10 house cars, which were all equipped with the W. & B. brake. The engine was also equipped with this brake.

Length of train (about) 400 feet. Weight of train (about) 150 tons.

Seventh Run.—W. & B. brake applied to all cars and to the engine.				
71	30.8	58 sec.	1,540	1.8 ft. dec.
70	30.8	40 "	1,060	1.5 ft. dec.
68	32.5	45 "	1,510	21.1 ft. dec.
66	32.5	52 "	1,210	Level.
64	34.2	40 "	11,05	2.3 ft. asc.
Return Trip:				
64	32.5	45 "	1,405	2.3 ft. asc.
66	34.2	57 "	1,135	Level.
68	32.5	40 "	1,150	21.1 ft. asc.
70	30.8	39 "	1,340	1.5 ft. asc.

The power for operating the brake is derived from the compression of the draw-bar by the momentum of the train, the compression acting by a system of levers on a pair of friction pulleys. One of these is of soft metal, and is cast on the axle. The other is of brass, and is mounted on a transverse spindle, so arranged that the faces of the pulleys are brought in contact, and produce an amount of retardation corresponding to the compression. The brake is automatic in its action, acts independently upon each car, and is entirely under the control of the engineer. It acts only when the car is moving forward or toward the engine, and develops the same braking power no matter which end of the car is foremost. Only one truck need be equipped with the device to operate all the brakes on a car, whether double or single.

The Railway News, of Philadelphia, will hereafter be published weekly instead of monthly as heretofore. It is handsomely printed, readable, independent and enterprising, and has fairly won the prosperity of which its change to a weekly is a substantial evidence.



THE ROTARY STEAM SNOW SHOVEL AT WORK.

THE CAR-BUILDER for October last, contained an illustrated description of a new rotary steam snow shovel for clearing railway tracks, but which had not then been put to a practical trial. Several important changes have since been made in the details of its construction, by which it has been rendered in the highest degree effective for the service designed.

A trial test of the machine, in its improved and perfected form, was made on the 28th of March last, on the Buffalo Creek Railroad, in the vicinity of Buffalo, and its performance is shown in the accompanying engraving made from an instantaneous photograph taken while the test was in progress. The machine was pushed into the drifts by a consolidation locomotive, the cutters effectually clearing the track by throwing the snow so far away that it is not likely to fall or be blown back again. It was also tried on another piece of track where the accummulated ice was hard and compact, and was equally successful in cutting a path through it. Its performance was witnessed by a number of railway officers, among whom were Mr. Geo. W. Dowe, Superintendent of the Buffalo Creek Railroad, and Mr. Charles A. Brunn, Superintendent of the Buffalo & Southwestern, whose commendatory letters are appended to the detailed description of the machine which follows:

The knife-wheel and shovels (or fan-wheel) are driven by two cylinders 17 in. diameter by 22 in. stroke. The boiler is of locomotive type and is 50 in. diameter, with a fire-box 69 in. long, 34 in. wide, 66 in. deep. There are 165 flues 2 in. diameter and 11 ft. 2 in. long. The total heating surface is 1,030 sq. ft.

Boiler and engines are securely fastened to the main frame of heavy I iron 12 in. deep by 5 in. wide, the front end of which receives the strong bed-plate and pillow-block castings carrying the fan-wheel and knife-wheel shafts, and at right angles to the latter the engine shafts. There is also an outside frame of channel iron for the purpose of carrying the car-body, which incloses the boiler and the whole machinery. The front bed-plate casting with main pillow-block extends the whole width of the outside frame, which is 9 ft. 6 in. It is well ribbed to enable it to receive the six gussets of ⅝ in. steel plates which carry the drum, and to which latter the gussets are fastened by means of 3¼ in. by 3½ in. by ⅝ in. double angle-irons. The drum is otherwise well braced to the frame to enable it to bear all the strains and shocks which might occur in going through deep drifts.

The face-wheel shaft is hollow, and the shaft of the knife-wheel revolves within it. The babbitted bearings at each end are of considerable length. The space between these bearings is used as a receptacle for oil, which latter will last for a considerable length of time. The solid shaft, after passing through the hollow shaft for some distance, rests at the back end in a thrust-bearing, to provide against the fore-and-aft thrust of the knife-wheel.

The motion of the knife-wheel and fan-wheel is transferred from the engines by means of beveled gears, one gear on the hollow shaft and one on the solid shaft gearing each into both of the gears of the separate engine shafts, so that one engine must run in the opposite direction from the other engine. There is a slight difference in the diameter of the gear-wheels, the wheels on the engine shafts being the largest, having 40 teeth of 3½ in. pitch, and those of the fan-wheel and knife-wheel 33 teeth; therefore, while the engine-shaft makes 175 revolutions, the knife and fan-wheels will make 200 revolutions, each in opposite directions.

The arrangement for reversing the knives for the purpose of cutting the snow from either direction, that is, either from the right or from the left, is somewhat difficult to explain explicitly without referring to a drawing. There are four knives consisting of ½-in. steel plate 40 in. long and 24 in. wide. They swing on the knife-arms, which latter extend from a square wrought-iron hub to a bearing fastened to an angle-iron at the circumference of the wheel, which is 8 ft. 9½ in. diameter. The space between the knives is occupied by the plates of steel ⅝ in. thick, forming sectors of a circle. They are fastened to the angle-iron on the circumference, and radially to four other spokes of wrought-steel between the knife-arms. The knives are held in a position forming an angle of about 30 degrees with the above-named sector plates, leaving openings of about 12 in. between the edges of the knives and the edges of the plates. At the end of the knives next to the hub the bearings have attached to them gear segments, which again gear into others, each of the latter having one strong bevel wheel tooth attached, which projects over the end of the square hub next to the end of the fan-wheel shaft, but does not come in contact with the latter. The end of the fan-wheel shaft next to the square hub of the knife-wheel forms a hub, and is provided with a deep annular groove to receive a ring 4 in. wide with four bevel wheel teeth, corresponding to the teeth of the second segment gear of the square hub. The bevel wheel ring can slide in and out on the central part of the fan-wheel hub a distance of 3 in., and may thus be engaged with the four segments of the square hub, or may be disengaged after the work of reversing the knives has been performed, which is done automatically. The first gear segments are each provided with two notches, corresponding to the two positions of the knives, and a four-winged clutch latches into these notches, holding the knives in proper position. The clutch may be disengaged by sliding it parallel with the axis of the shaft, which is done simultaneously with the sliding of the bevel wheel ring, bringing the latter to gear with the second segment gears, and the knives being free, they will swing over to the other cutting position when the bevel wheel ring is allowed to return.

After this work of reversing the knives has been performed, the ring and clutch fly back, the clutch fastening the knives again, and the ring in the same instant disengaging the gears. The clutch has four rods attached, passing through the square hub, and connected to a sleeve back of the hub. Springs in the hub keep it in proper place. The bevel wheel ring also connects by means of rods to a sleeve around the hollow shaft, and springs keep it disengaged from the gears. Two rods behind the fan-wheel hub pass outside the shaft through the pillow block, and are attached to a ring-shaped plate on the shaft, to which a spring-latch arrangement is attached, so that when the ring-shaped plate is forced forward by means of a lever combination at a certain position of knife and fan-wheel, the clutch and bevel wheel ring are both moved forward. The engines are then slowly reversed, and the latch on the hollow shaft disengages at the proper place, fastens the knives, and disengages the gears, and the shovel is ready to do its work again in the opposite direction.

The opening of the spout can also be changed so as to cast the snow on the proper side corresponding to the motion of the fan-wheel.

The spout starts from the circumference on the top of the drum with an opening of 6 ft. Part of the sheet on each side forming the circumference of the drum leads off tangentially at an angle of about 50°; so that if such sheet from each side were continued to the vertical center line, the vertex of an angle would be formed there, but the sheets being cut off, they leave an opening of about 42 in. measured horizontally.

In order to form an opening on either side of the center line of the draw, a cap or plate is introduced which swings at the vertex, forming there a bearing on each side of the wheels, which incase the opening fore and aft. This plate continues at the same angle as the sheets from the drum, and rests on the latter. The shaft on the top of the cap plate running across from sheet to sheet extends beyond the back sheet to receive a chain wheel, and a chain runs from there below to a pinion, to the shaft of which a hand wheel is attached by which the cap may be changed to either side of the spout. A pawl with ratchet-wheel on the pinion shaft keeps the cap in its position. There is also an arrangement attached to the bearings of the cap-shaft by which the cap may be raised or lowered in the center for the purpose of changing the angle.

At an angle of 50°, and at 200 revolutions of the fan-wheel, the horizontal distance thrown (if the snow is well enough packed) would be about 248 ft. and the vertical height about 74 ft.

At the trial near Buffalo the number of revolutions was not noted, but the distance thrown was reported to be 295 ft., and from this it is calculated that the fan-wheel must have made at least 210 revolutions.

To avoid any danger of throwing the whole machine from the track in case of ice having formed inside the rails, an ice-breaker is attached in front of the forward wheels of the front truck. This ice-breaker consists of two strong pieces of steel inside, in the shape of a large planing tool, projecting about 2 in. below the tops of the rails and placed inside them. They are attached to a frame which swings on the axle, and may be raised when required from the inside of the house.

There is also a flanger attached in rear of the back wheels of

the forward trucks, to remove the snow remaining on and between the rails and not taken away by the shovel. The attachment is made in the same manner as the ice-breaker. It may also be raised when necessary. A steam brake is attached to the wheels of the rear truck.

The principal dimensions of the machine are as follows:

Distance apart of centers of trucks	16 ft.	8 in.
Center of front truck to back of drum	3 "	11 "
Extreme length of drum	5 "	1 "
Extreme length of frame from back of drum	29 "	1 "
Extreme length of machine	34 "	2 "
Height of machine to top of spout	12 "	8 "
Width of house	9 "	6 "
Length of body of house	28 "	4 "
Length of roof of house	31 "	6 "

Weight of entire machine, about 45 tons.

The machines are made by the Cooke Locomotive Works, Paterson, N. J., and the office of the Rotary Steam Snow Shovel Co. is in the same city.

The shovel tried at Buffalo is now on exhibition at the round-house of the Chicago & Atlantic Railroad, Chicago, and can there be seen by any who feels an interest in the subject.

COOKE LOCOMOTIVE & MACHINE CO.,
PATERSON, N. J., April 10, 1885.

J. S. Leslie, President Rotary Steam Snow Shovel Co.

DEAR SIR: In reference to your steam snow shovel we would say, that considering the severe test to which it was subjected, its performance was highly satisfactory and beyond our most sanguine expectations. Any railroad subject to snow blockades would be able, with the use of your machines, to keep their road open in the most severe storms, causing a great saving in rolling stock and delays, and making the machine almost indispensable.

Yours truly, JOHN S. COOKE, Pres't.

NEW YORK, LAKE ERIE & WESTERN R. R. CO.,
BUFFALO & SOUTHWESTERN DIVISION,
BUFFALO, April 2, 1885.

J. S. Leslie, President Rotary Steam Snow-Shovel Co.

DEAR SIR: I witnessed the trial test of your steam snow shovel on the Buffalo Creek R. R. in this city, on Saturday, March 28, and am satisfied that it will do all you claim for it.

For the benefit of managers of lines that are bothered with snow to any great extent, I beg to state that the trial referred to was made in a heavy, wet snow, varying from two to six feet in depth, and which was more or less mixed with sand that had blown in from the beach of Lake Erie. The shovel dug a clean channel through this and threw the snow from 100 to 300 feet from the track.

The test was undoubtedly the most severe one that the shovel could have been put to.

In my opinion, the steam shovel is indispensable on roads with two or more main tracks, that are in any way bothered with snow.

Yours very respectfully,
CHARLES A. BRUNN,
Supt. B. & S. W. Div.

BUFFALO CREEK R. R. CO.,
BUFFALO, April 1, 1885.

J. S. Leslie, President, Rotary Steam Snow-Shovel Co.

DEAR SIR: At the recent trial test of your rotary steam snow shovel, made upon the tracks of this company, the tracks selected to be cleared of snow had been covered with snow all winter and not in use by us, near the lake front, with no obstruction to break the wind, snow storms coming from the west and off the lake. The snow had become compact and solid from two to six feet deep, and much to the astonishment of all present (and there were many prominent and practical railroad men), your plow cut a clean swath ten feet wide, throwing the snow high in the air over a 32-feet trestle, and 295 feet into the canal, resembling a stream of water from the nozzle of a hose. So clean did the plow do its work, our roadmaster, who was present, ran the tape over the distance, in order to be accurate as to distance and height, which I can vouch for. I can say it is a wonderful invention and will do all you represent, and, as to the doubters, one single test will more than convince. As to its usefulness, there can be no excuse for main lines being blocked with snow with one of these plows on hand.

Yours truly, GEO. W. DOWE, *Ass't Supt.*

Technical Books for Car-Builders.

A correspondent writes to us as follows:

"I want to get a book that will give me the method for calculating the dimensions of a piece of wood or iron to carry a given load in a bridge, car or any other similar structure. I need a book which will give plain instructions, such as a common man can understand without having to study higher mathematics. You know that most of the scientific writers in getting up their books use terms and calculations which no man short of a professor of mathematics can understand. I have the last edition of Haswell's Pocket-Book. It treats of a great variety of subjects, but in a very brief manner. He also has the faults I have mentioned."

It must be admitted that there is a widely felt need for scientific text books that are level to the comprehension of mechanics and others whose mechanical studies have been confined to the rules and methods of arithmetic. Although the need is urgent, it is difficult to see how it can fully be provided for. Engineering treatises and text books are necessarily technical, and can not be simplified without limiting their distinctive sphere of usefulness. As well might a treatise on algebra be simplified by being reduced to the level of arithmetic. In such case there would be so much less algebra and not a whit more of arithmetic. It is not the fault of the general run of scientific text books that they can not be understood by everybody, but it is the fault or the misfortune of those who consult them without a previous acquaintance with certain branches of rudimental knowledge which are absolutely essential. It is not surprising that people who have forgotten some of the more complex elements of arithmetic which they learned at school, should be puzzled at the sight of Arabic numerals combined with algebraic signs.

This is very well understood by the authors and compilers of technical treatises, and many of these works are simplified as much as possible in order to adapt them to the comprehension of laymen, extend their usefulness and at the same time increase the profit on sales. Most of the hand and pocket-books that are so extensively used, necessarily embrace a wide range of subjects, and the space allotted to each is therefore limited. Usually there is a preliminary chapter containing explanations of the elementary principles of algebra, and in some instances of the higher mathematics. These chapters, if carefully studied, will be a great help to the uninstructed reader, and the bugbear of algebra will be stripped of half its terrors. The higher mathematics, so called, are not always needed for determining the size of trusses, beams, posts, etc. Most of the modern books give what are called graphic methods, which, with the aid of the tables, render arithmetical calculation quite unnecessary.

Trautwine's Hand-Book is probably the best adapted to the wants of our correspondent. It is intended for practical men who have a good knowledge of arithmetic, and can lay off a diagram to scale. The last edition contains some 700 closely printed pages, and a new one very greatly enlarged will soon be issued. In either of these will be found an abundance of information of the kind asked for by our correspondent, arranged for easy reference and comprehension. Molesworth's Pocket-Book, an English work, contains much valuable information upon the same subjects, some of which are treated in a very clear and simple manner. Hamilton's Useful Information for Railway Men, was originally issued in the interest of the Ramapo Wheel and Foundry Company, but has since been revised and enlarged and put upon the market in the usual way. It is comparatively inexpensive, but too much should not be expected of it. Templeton's Hand-Book has been issued in two editions. The first and larger one is printed in England. Neither of them is as comprehensive as Haswell's or Trautwine's, but they are popular on account of the simplicity of the rules contained in them. Nystrom's Pocket-Book is full of information for steam and mechanical engineers. Little use is made in it of the higher mathematics, but all the rules are given in formula, and hence it can hardly be said to be popular.

Prof. Thurston's three volumes on Materials of Engineering are works of standard excellence. They do not indicate the sizes of material used in construction, but its quality, strength, etc. The last edition of Haswell's work, of which our correspondent speaks, contains a large amount of information which can not be found elsewhere. Most of the errors contained in previous editions have been corrected in this one, and it is practically a new book. Every car-builder's library should be considered incomplete without Haswell and Trautwine. The latter, indeed, is indispensable.

THE Green Island shops of the Delaware & Hudson Canal Co. are working about 200 men. The houses in which the cars are stored during the winter are full, there being some 24 passenger coaches inside in addition to 12 stored in the yard. Most of these have been recently overhauled and are practically new cars. New head-linings, lamps and seats have been put in, and several cars have had new timbers in the floors. These latter cars were originally built with cross-framing. There are six of these coaches that have been altered in this way. The shops are about to build a new combination car. Six baggage cars have been overhauled and put in condition for the Summer business. On one of the baggage cars, a new scraper and plunger has just been applied. It is similar to that in use on the Rome, Watertown & Ogdensburg road. The plows are hung on slides, and are raised and lowered by levers inside the car. They are supported in a horizontal direction by long rods which bear on the ends of a half elliptic spring. The object of this is to give an elastic connection in case of meeting with an obstruction. There are two pairs of scrapers which are used for going in opposite directions. These shops have the same fire organization as that at Oneonta. It is on record that they have had a stream playing upon a building in 15 seconds from the time the alarm was struck.

Book Notices.

TABLES FOR FIELD ENGINEERS.—By Amos Stiles; 156 pages; 4 × 7 inches in size. Published for the author.

This neatly printed little work contains those tables which the field engineer in railroad survey commonly finds necessary. They are arranged in a peculiarly convenient manner, and have been adapted especially to the wants of the class for whom they are intended. The opening chapters give concise explanations of the tables, with rules for their use.

THEORY OF TRANSVERSE STRAINS, AND ITS APPLICATION IN THE CONSTRUCTION OF BUILDINGS. By R. G. Hatfield. 630 pages; 125 illustrations; 6×9 inches in size. John Wiley & Sons.

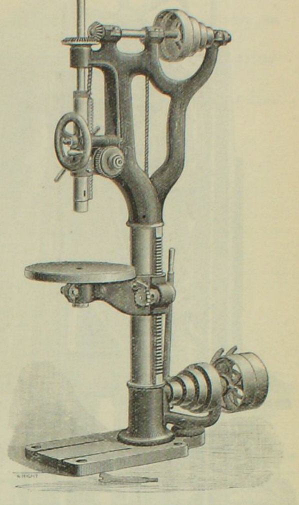
This work, although written with a view to the wants of builders and students of architecture, will be found useful to all who have to undertake the structural use of wood or iron. Graphical methods have been largely employed, and many of the more abtruse parts of the subject have been treated in this way. The result has been a great gain in simplicity and clearness. Elaborate tables are given for the transverse strains of both wood and iron. These tables are especially valuable, giving by inspection the dimensions for beams of almost any ordinary size, and of all the usual kinds of timber employed in construction in this country. The tables for rolled metal beams are equally valuable and quite elaborate. By means of references to the different articles the application of them is made very simple. The table containing the elements of I-beams includes sections from the principal iron works of the whole country. The constructor in every department will find this work a valuable addition to his library.

STEAM MAKING; OR BOILER PRACTICE, by Chas. A. Smith, C. E. The American Engineer, Chicago.

The aim of the author of this work has been to gather from the most approved sources, and embody in a volume of moderate size, a mass of information of special value to the builders and users of steam boilers of the various classes. Illustrated examples are given of the peculiarities of construction of stationary, locomotive, and marine boilers, with descriptions and specifications. The nature of heat, properties of steam, and the principles of combustion are elaborately treated; also a variety of collateral topics pertaining to boiler economy and management. The examples chosen are mostly taken from American practice, and are such only as the author considered sanctioned by general experience.

ARCHITECTS' AND BUILDERS' POCKET-BOOK. By Frank E. Kidder. 586 pages; 408 illustrations; 4 × 7 inches in size. John Wiley & Sons, New York.

This is a new work intended to take the same place for architects and builders as Trautwine's pocket-book does for engineers. The practical facts, rules and tables are presented in as convenient and concise a form as possible, and to the railway man who has buildings to design and construct, whether they be stations, sheds, round-houses or depots, this manual will be invaluable. The chapters on foundations, masonry, retaining walls, etc., though short, are to the point, and cover the subject satisfactorily, while those devoted to wrought iron-work used in constructions of a fire-proof character are all that are needed by any ordinary builder. The illustrations are numerous and beautifully engraved and printed.



Davis' Improved Upright Drill Press.

The engraving represents a new and improved upright drill press, manufactured by W. P. Davis, North Bloomfield, N. Y. The drill has 4½-inch column, will swing 20 inches on face plate. From the base table to the end of spindle it is 48 inches. The diameter of face plate is 14 inches. The sleeve and face plate is made to raise and lower by merely pushing down on handle or raising up, it being accurately balanced by a weight inside of column. It can be changed with ease and in less time than any other drill made. The spindle is of steel, and is held in an arm that is made to swing over, the same as a planer-head, and by so doing work can be drilled at any degree or angle required. The table swings around the column, and also turns on the sleeve if desired, so that it will drill at any point on the face plate without moving the work on it. The drill is provided with a screw-feed, or hand-wheel, which has a brass nut, and the spindle is connected to the screw with a brass cap-nut. Each drill is provided with a chuck for the Morse taper shank drills, but if desired, Beach's patent drill chuck will be furnished at manufacturer's prices. The gears are cut, both spindles and screws are made of steel, and the sleeve is made to fasten with handle by clamping to column.

The drill has, in connection with the screw-feed, a lever feed for small quick drilling and counter-sinking, by which, for many kinds of work, double the amount can be turned off than with the ordinary screw-feed. The drill is provided with counter-shaft, pulleys, hangers, belt-shifter and hanger-plank complete, ready to attach as soon as received.

Great pains have been taken to produce a *first-class tool*, so arranged as to give great strength, accurate work with simplicity and ease of handling, at a price that will insure a large sale with satisfaction to the purchaser.

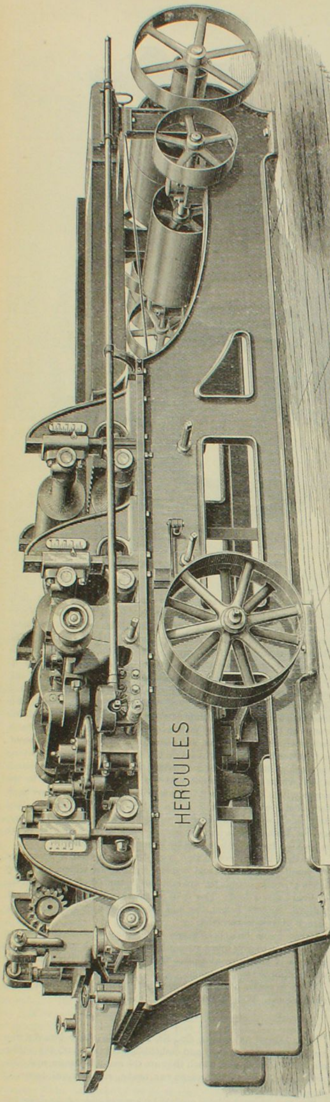
Drills to centre of 20½ inches. Has quick return. Steel shafts and spindle. Weight, 600 pounds. Price, $100.

THE AMERICAN BRAKE CO., St. Louis, Mo., have issued a new and sumptuously printed and embellished catalogue of the different styles of brakes of which they are the manufacturers, and comprising their automatic freight car brake, and several forms of steam driver-brakes.

The freight car brake is applied by compression of the draw-bar from resistance at the head of the train. Its construction and operation, together with the various parts and connections, are clearly illustrated and explained. In reference to its performance, it is said to have been working successfully for years upon a large number of cars. The numerous tests that have been made and published from time to time are not given, for the reason obviously that railway men are already familiar with them. It is stated, in a general way, however, that a train of 25 or more loaded cars, at a speed of 25 miles an hour on a descending grade, can always be stopped within its length. The cost of the brake per car complete is $15.

Of the driver-brakes, one has a horizontal cylinder, and is applicable to engines having the requisite distance between drivers; another has an upright cylinder, and can be applied where the distance between drivers is as little as three inches; there is also a spring toggle driver-brake which gives to the toggles an elastic action and prevents undue strain and wear upon the parts from a too rigid leverage. A tender brake is also shown, which is recommended to be used in connection with the company's driver-brakes. The price of driver and tender brake is $200, and of driver brake only, $150. A list of over 100 roads is given that are using the company's brakes to a greater or less extent.

THE A. FRENCH SPRING CO. (Limited) have removed their office in Chicago, from 246 Clark street to Adams Express Building, Rooms 13 and 14. Joseph M. Rogan is agent for the company in Chicago.



SCHENCK'S NEW PATTERN "HERCULES" PLANING AND MATCHING MACHINE.

THIS machine is entirely new in design, and is especially adapted to the requirements of the lumber trade of the present day. Competition renders it necessary that lumber should be finished better, and at a less cost than heretofore. Quality and quantity are alike considered, and satisfactory results can only be attained with machinery of the best manufacture.

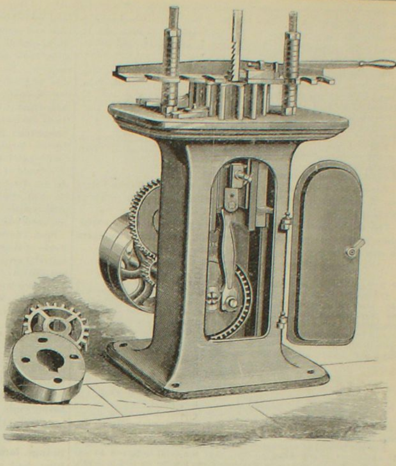
Good work in paying quantities can not be *continuously* produced with cheaply-made machinery. This the foremost lumber manufacturers of the country have proved to their entire satisfaction. The extra outlay required for the purchase of the best machinery pays a better dividend than any other investment about the mill. Such machinery must be of the best material; it must be economical in all its working parts, have well-proportioned and well-finished bearings and gearing, accurate and easy adjustments, strength, simplicity and durability.

The machine represented in the cut has all these requisites. The frame is long and very heavy, and is firmly held together by the necessary girts and the entering table. The cylinders are of forged steel, slotted on four sides, and have extra large journals of tool steel running in long bearings. The pressure bars for both upper and under cylinders are adjustable to and from the knives, so that all kinds of irregular work can be done. The feed rolls are 8½ inches in diameter, and are driven by very heavy gearing. The matcher spindles are of tool steel and extra large. They run in long self-oiling bearings. Each one is provided with an improved swing chip-breaker.

Among the many other important features of these machines is the numbering of all the parts. Each part has its letter and number stamped upon it. Should a piece become badly worn or broken, it is only necessary to write or telegraph the letter and number found on the old part, and it can be replaced without delay and guaranteed to fit perfectly.

The machines are made with 6 or 8 feed-rolls, and in three widths, 8½, 14 and 24 inches wide, and will work 4, 6 or 8 inches thick. They weigh from 8,800 to 12,000 pounds. Being so heavy, and having a capacity from ¼ to 8 inches thick, they are admirably adapted to car shops as well as planing mills.

For circulars and other particulars address the manufacturer, H. B. Schenck, Matteawan, Dutchess County, New York, U. S. A.



Davis' Patent Key-Seater and Slotting Machine.

THE frame of this machine is made of one casting together with the ways, and is therefore very strong and cannot get out of line. The gears are 1⅝ face and are all cut gears. The connecting rod is so arranged as to keep chips and dirt from falling into crank pin. The gears are all cased and therefore are in no danger from anything getting into them (this casing is not shown in cut). The ways are bored-out and top of frame faced by putting frame on a mandrel and facing up top of column in lathe, the top is planed on both sides, and by this arrangement every part is brought perfect and true. The saw clamp is very handy and requires but a very short time to change cutters. The stud pins to clamp are provided with washers and so arranged that the clamp can be placed between them at any height required and will not drop down. A very simple arrangement is also furnished to give any desired draft to key seat required, also any depth, and every one can be made the same; this is a point long sought for and is now made to work so perfect that this machine can be used in all shops where key seating is required. The pulleys are 13 inches in diameter and 4½ inches in face and should make 350 revolutions per minute. This machine will cut from ¼-inch to 1-inch key seats, and work very fast. Each machine is furnished with ⅝-inch and ½-inch cutters.

Price of machine, $100; price of cutters, each:

¼-inch	$2.00	⅝-inch	$3.50
5-16-inch	2.25	11-16-inch	3.75
⅜-inch	2.50	¾-inch	4.00
7-16-inch	2.75	13-16-inch	4.25
½-inch	3.00	⅞-inch	4.50
9-16-inch	3.25	1-inch	5.00

Manufactured by W. P. Davis, North Bloomfield, N. Y.

THE Cincinnati Forge & Iron Co. have purchased the plant of the Cincinnati Steam Forge Co., which has been idle since October. The works are now manufacturing driving, truck and car axles and other forgings. Mr. P. De Tamble is vice-president and manager. He had been president and manager of the former company. The other officers, Messrs. Pollak, Block and Benjamin, are members of the firm of Block & Pollak in Cincinnati, and Block, Pollak & Co. in Chicago, and are well known among railway men and car-builders.

THE CINCINNATI CORRUGATING CO. have issued three handsomely illustrated circulars, one of which is descriptive of their corrugated, or crimped, iron paneled ceilings, with directions for putting them on; another describes an improvement in iron roofing by the application of water-proof packing between the joints of the sheets, with directions for laying the same; and a third shows the style and construction of the company's corrugated iron shutters for buildings, with specifications that should accompany orders.

THE PINTSCH LIGHTING CO. has removed its office from 19 William street, New York, to the "Washington Building," No. 1 Broadway, Room 87.

THE office of the MANN'S BOUDOIR CAR CO. has been removed from 11 Pine street to the Wells Building, 18 Broadway, New York.

Our Directory.

We note the following changes since our last issue. Our readers will do us a great favor by giving us prompt notice of any changes that may come to their knowledge or of any errors that may be noticed in our list:

Bennington & Rutland.—Charles McMasters has been appointed Master Mechanic, with office in Rutland, Vermont.

Cincinnati & Eastern.—P. W. Naughton has been appointed Master Mechanic in place of J. C. Homer, resigned.

Louisville & Nashville.—J. T. Harahan has been appointed Assistant General Manager.

Missouri Pacific.—John Hewitt having resigned as Superintendent of Locomotive and Car Departments, that office has been abolished, and O. A. Haynes has been appointed Inspector of Locomotives, Cars and Machinery. Joseph Herrin has been appointed Superintendent of all lines in Texas.

New York Central Sleeping Car Co.—F. H. Collett is appointed District Superintendent, in place of W. S. Odell, resigned.

New York, Chicago & St. Louis.—M. M. Rodgers has been appointed Purchasing Agent.

New York, Lake Erie & Western.—Wm. Litz has been appointed Master Mechanic of the Buffalo Division, in place of G. B. Ross, resigned.

New York Philadelphia & Norfolk.—W. H. Dunne has been appointed Superintendent, in place of James McConkey, resigned.

Norfolk & Western.—Charles Blackwell has resigned the office of Superintendent of Motive Power of this road and of the Shenandoah Valley roads.

Northern Pacific.—J. B. Cable has resigned the office of Superintendent of the Rocky Mountain Division, and F. W. Gilbert has been appointed in his place.

Silver Lake.—C. W. S. Nobles been appointed Superintendent of this road.

Union Pacific.—Day K. Smith has resigned the office of Superintendent of the South Park Division.

Wabash, Chester & Western.—Robert Meek has been appointed Superintendent of this road.

Wabash, St. Louis & Pacific.—W. J. Brokaw has been appointed Master Mechanic of Western Division, in place of W. H. Selby, resigned. John McKenna has resigned as Master Mechanic, at Peru, Ind., and A. W. Quackenbush has been appointed Assistant Master Mechanic, and Thos. Anderson Master Car Builder, at that place.

Woodruff Sleeping & Parlor Coach Co.—Wm. A. Wiener has been appointed Superintendent of Parlor Cars on Long Island, with office at Long Island City, N. Y. C. S. Lenoir has also been appointed Superintendent of this company, with office at St. Louis, Mo.

THE LIDGERWOOD MANUFACTURING CO., New York, have built a special pile-driver engine for the Central Railroad of Georgia, and two hoisting engines for the Pennsylvania Railroad Co.

Employment.

WANTED.—By a first-class Draughtsman and practical Car-Builder of long experience and with best references, employment in a railroad car shop, either as foreman or draughtsman. Address "H. G.," Office of NATIONAL CAR-BUILDER.

WANTED.—A position as Designer or Foreman of Painting Department in the car shops of a railroad or car manufactory, by a man who is thoroughly competent, has had large experience, and can furnish good recommendations. Address "Designer," office of NATIONAL CAR BUILDER.

DIRECTORY

of the Railroads of the United States and Canada, showing the gauge, length of road, number of locomotives and number of cars; and giving the names and titles of their principal officers in charge of the operating, purchasing and rolling stock departments.

A

Adirondack R. R. 4-8½ gauge 60 m. 3 lo. 62 cars.
C. E. Durkee, Supt ....Saratoga, N. Y.
Jacob Myers, M. M. ....Saratoga, N. Y.
Jas. J. Traver, M. C. B. ....Saratoga, N. Y.
Addison & Northern Penn'a Ry. 3 g. 51 m. 5 lo. 50 c.
F. M. Baker, Gen. Supt. ....Addison, N. Y.
Alabama Great So'n R. R. (See Cin., N. O. & T. P.)
Albany & Susquehanna R. R. (See D. & H. Canal Co.)
Albemarle & Raleigh R. R. 4-8½ g. 33 m. 3 lo. 35 c.
Jas. H. Petty, Gen. Supt. ....Tarboro, N. C.
Albert Ry. 4-8½ g. 51 m. 3 lo. 35 cars.
G. A. Robinson, Man. & Pur. Agt. Hillsboro, N. B.
Jas. McKay, M. M. & C. B. ....Hillsboro, N. B.
Alexandria & Fredericksburg Ry. } See Penna. R. R.;
Alexandria & Washington R. R. } (7) Div.
Allegheny Valley R. R. 4-9 g. 259 m. 70 lo. 2202 c.
David McCargo, Gen. Supt. & Pur. Agt.; and
C. B. Price, Supt. (Riv. Div.) ....Pittsburg, Pa.
A. A. Jackson, Supt. (L. G. Div.) Reynoldsville, Pa.
W. A. Wood, M. M. ....Verona, Pa.
R. Gunning, M. C. B. ....Verona, Pa.
Alliance, Niles & Ashtabula R. R. (See Penna. Co.)
Annapolis & Elk Ridge R. R. 4-8½ g. 20 m. 4 lo. 29 c.
W. H. Bians, Supt. & Pur. Agt. ..Annapolis, Md.
John L. Beall, M. Mach. ....Annapolis, Md.
Anniston & Atlantic R. R. 3 g. 9 m.
Tho. K. Scott, Supt. ....Anniston, Ala.
Antwerp & Paulding R. R. 4-8½ g. 6 m. 4 lo. 63 c.
E. C. Munson, Gen. Man. ....Antwerp, O.
William Fitzsimmons, Jr., Pur. Agt. Antwerp, O.
Arizona & New Mexico Ry. 3 g. 71 m. 3 l. 60 cars.
W. H. Jones, Gen. Supt. & P. A. Lordsburg, N. M.
W. C. Boylan, M. M. & M. C. B. Lordsburg, N. M.
Arkansas Midland R. R. 3-6 g. 63 m. 4 lo. 45 cars.
A. H. Johnson, Pr. & Gen. Man. ..Helena, Ark.
J. B. Johnson, M. M. & M. C. B. ..Helena, Ark.
Arkansas & Louisiana Ry. 4-8½ g. 28 m.
J. D. Beardsley, Supt. ....Washington, Ark.
Asheville & Spartanburg R. R. 5 g. 49 m. 2 lo. 12 c.
Jas. Anderson, Supt. & Pur. Agt. Spart'b'g, S. C.
M. M. ....Spartanburg, S. C.
Ashland Coal & Iron Ry. 4-8½ g. 22 m. 7 lo. 432 c.
Douglas Putnam, Jr., Gen. Supt. Ashland, Ky.
Robt. Peebles, Pur. Agt. ....Ashland, Ky.
E. M. Roberts, M. M. ....Ashland, Ky.
Ashtabula & Pittsburgh Ry. (See Penna. Co.)
Atchison, Topeka & Santa Fé R. R.
4-8½ g. 2,620 m. 348 lo. 9,629 cars.
A. A. Robinson, Gen. Man. ....Topeka, Kan.
Geo. B. Harris, Asst. Gen. Man. ..Topeka, Kan.
Geo. Hackney, Supt. Mach. ....Topeka, Kan.
Clem. Hackney, Asst. Sup. Mach. Dept. do.
Geo. Hargraves, Pur. Agt. ....Topeka, Kan.
Eastern Div.: D. J. Chase, Supt. ..Topeka, Kan.
Henry Hull, G. F. Car Dept. ..Topeka, Kan.
John Fagan, M. M. ....Atchison, Kan.
J. M. Smith, M. M. ....Kansas City, Mo.
Alfred Taylor, M. M. ....Emporia, Kan.
Mid. Div.: H. R. Nickerson, Supt. Nickerson, Kan.
W. Y. Johnson, M. M. ....Nickerson, Kan.
W. Div.: C. M. Rathburn, Supt. ..La Junta, Col.
A. C. Stiles, M. M. ....La Junta, Col.
D. H. Dotterer, M. M. ....Raton, N. M.
Las Vegas Div.: Chas. Dyer, Supt. Las Vegas, N. M.
F. B. Woodruff, M. M. ..Las Vegas, N. M.
J. H. Holman, M. M. ....Wallace, N. M.
Rio Gr. Div.: P. F. Barr, Supt. San Marcial, N. M.
E. Hackett, M. M. ....San Marcial, N. M.
H. P. Olcott, M. M. ....Deming, N. M.
Geo. A. Hancock, M. M. ..El Paso, Tex.
Sonora Div.: 265 m.
L. H. Waugh, M. M. ....Guaymas, Mex.
Kan. Cy., Law. & So. Kan.
4-8½ g. 399 m. 24 lo. 787 c.
J. L. Barnes, Supt. ....Lawrence, Kan.
T. D. Volk, M. M. ....Ottawa, Kan.
Atlanta & West Point R. R. (See Western of Ala.)
Atlantic & Danville Ry. 3 g. 17 m.
E. G. Sweatt, Gen. Man. ....Waverly, Va.
Atlantic & North Carolina R. R. (See Midland; N. C.)
Atlantic, Tenn. & Ohio R. R. (See Rich. & Dan.; (2) Div.)
Atlantic & Pacific R. R. 4-8½ g. 575 m.
F. W. Smith, G. Supt. ....Albuquerque, N. M.
F. P. Wherry, Pur. Agt. ....St. Louis, Mo.
Geo. Chalender, Supt. M. P. & M., and
Geo. F. Chalender, A. Supt. Albuquerque, N. M.
Augusta & Knoxville R. R. (See Port Royal & Aug.)
Austin & Northwestern R. R. 3 g. 60 m. 5 lo. 75 c.
J. A. Rhomberg, Gen. Man. ....Austin, Tex.

B

Bachman Valley R. R. (See Han. Junc., Han. & Gett.)
Balt. & Delaware Bay R. R. 4-8½ g. 50 m. 2 lo. 13 c.
Fred Gerker, Gen. M. & P. A. Chestertown, Md.
Baltimore & Hanover R. R. (See H. J., H. & G.)
Baltimore & Ohio R. R.
4-8½ g. 1,612 m. 574 lo. 17,339 cars.
B. Dunham, Gen. Man. ....Baltimore, Md.
N. S. Hill, Pur. Agt. ....Baltimore, Md.
Main Stem Div.: 4-8½ g. 972 m.
W. M. Clements, Gen. Supt. ..Baltimore, Md.
A. J. Cromwell, M. of M. ..Baltimore, Md.
E. W. Grieves, M. C. B. ....Baltimore, Md.
Andrew Beckett, M. M. ....Baltimore, Md.
Wm. Edwards, M. M. ..Martinsburg, W. Va.
Sam. Houston, M. M. ....Piedmont, W. Va.
Robert Maxwell, M. M. ....Cumberland, Md.
W. P. Harris, Supt. West of Cumberland, Md.
S. B. Crawford, M. M. ....Grafton, W. Va.
Alex. Laird, M. M. ....Parkersburg, W. Va.
W. B. McClung, M. M. ....Wheeling, W. Va.
Pitts. Div.: J. T. Harahan, Gen. Supt. Pittsburgh, Pa.
I. N. Kalbaugh, M. of M. ..Connellsville, Pa.
Trans-Ohio Divs.: G. J. Foreacre, G. Supt. Newark, O.
W. H. Harrison, M. of Mach. ....Newark, O.
E. L. Weisgerber, M. M. ....Newark, O.
H. M. Ingler, M. M. ....Bellaire, O.
O. B. Perkins, M. M. ....Zanesville, O.
Thos. Taylor, M. M. ....Sandusky, O.
F. J. Gunther, M. M. ..Chicago Junction, O.
Chi. Div.: F. H. Britton, Supt. Trans. Chicago, Ill.
Benj. Lowther, M. M. ....Garrett, Ind.
W. H. Wilkinson, M. M. ....Kingston, Ill.
Newark & Straitsville Div.: N. Criswell, Shawnee, O.
Baltimore & Philadelphia. 4-8½ g. 40 m. 7 lo. 35 c.
B. Dunham, Gen. Man. ....Baltimore, Md.
D. Connell, Supt. ....Wilmington, Del.
Baltimore & Potomac R. R. (See Penna. R. R.; (7) Div.)
Bangor & Piscataquis R. R. 4-8½ g. 63 m. 4 lo. 87 cars.
Arthur Brown, Supt. & Pur. Agt. ..Bangor, Me.
C. S. Nason, M. M. ....Bangor, Me.
J. W. Comins, M. C. B. ....Oldtown, Me.
Bangor & Portland Ry. 4-8½ g. 25 m. 3 lo. 3 c.
C. Miller, Pres. & Gen. Man. ..Blairstown, N. J.
Barclay R. R. 4-8½ g. 16 m. 6 l. 200 c.
F. F. Lyon, Supt. ....Barclay, Pa.
J. A. Hardenburg, Pur. Agt. ..21 Cort. st., N. Y.
Wm. Johnson, M. M. ....Towanda, Pa.
Batesville & Brinkley R. R. 3 g. 40 m. 3 lo. 42 c.
R. W. Martin, Pres. ....Little Rock, Ark.
W. J. Thompson, Gen. Man. ..Little Rock, Ark.
E. Summerfield, Gen. Supt. ....Brinkley, Ark.
John White, M. M. ....Brinkley, Ark.
Bath & Hammondsport R. R. 3 g. 10 m.
Allen Wood, Gen. Man. ..Hammondsport, N. Y.
Baton Rouge, Grosse Tête & Opelousas R. R.
5-6 g. 29 m. 3 lo. 12 c.
D. C. Montan, Gen. Supt. ....Port Allen, La.
Bedford & Bloomfield Ry. 3 g. 43 m. 5 lo. 86 cars.
Jas. W. Kennedy, Gen. Supt. & Pur. Agt.; and
Capt. John Thumser, M. M. ....Bedford, Ind.
Jas. Richards, M. C. B. ....Bedford, Ind.
Bellaire, Zanesville & Cin. Ry. Co. 3 g. 112 m 5 lo. 71 c.
S. L. Mooney, Pres. ....Woodsfield, O.
W. R. Crumpton, Gen. Man. ....Zanesville, O.
C. E. Hill, M. M. ....Zanesville, O.
Bell's Gap R. R. 4-9 g. 25 m. 5 lo. 148 cars.
R. G. Ford, Supt. & Pur. Agt. ..Bellwood, Pa.
Geo. Van Brunt, M. M. ....Bellwood, Pa.
A. Zimmerman, M. C. B. ....Bellwood, Pa.
Belt R. R. 4-8½ g. 12 m. 10 lo.
W. P. Ijams, Supt. ....Indianapolis, Ind.
Belt Ry. 4-8½ g. 27 m.
Jas. D. Carson, Gen. Man. ....Chicago, Ill.
R. W. Johnson, M. M. ....Chicago, Ill.
Bennington & Glastonbury. 4-8 g. 10 m.
R. C. Root, Pres. ....Bennington, Vt.
Bennington & Rutland Ry. 4-8½ g. 59 m. 10 lo. 236 c.
E. D. Bennett, Supt. & Pur. Agt. Bennington, Vt.
Chas. McMasters, M. M. ....Rutland, Vt.
Berlin Branch R. R. (See Han. Junc., Han. & Gett.)
Bingham, Canyon & Camp Floyd (See Den. & Rio Gr.)
Bladen, Columbus & Florida. 4-8½ g. 16 m. 2 lo. 2 c.
John Colville, Pres. ....Wilmington, N. C.
Bodie & Benton Ry. & Com. Co. 3 g. 34 miles.
Thomas Holt, Supt. & Pur. Agt. ..Bodie, Cal.
E. H. Barton, M. M. & C. B. ....Bodie, Cal.
Boston, Barre & Gardner. 4-8½ g. 37 m. 8 lo. 108 c.
H. H. Marshall, Supt. & P. A. ..Worcester, Mass.
Frank I. Goodwin, M. M. ....Worcester, Mass.
Boston, Hoosac Tunnel & W'n Ry.
4-8½ g. 87 m. 18 lo. 1,038 cars.
H. L. Morrill, Gen. Man. ..Mechanicsville, N. Y.
C. H. Cory, Pur. Agt. ..Mechanicville, N. Y.
C. H. Cory, Supt. & M. M. ..Mechanicville, N. Y.
John S. Ellis, M. C. B. ..Mechanicville, N. Y.
Boston, Revere Beach & Lynn R. R. 3 g. 9 m. 7 lo. 46 c.
C. A. Hammond, Supt. & P. Agt. Boston, Mass.
R. D. Sutherland, M. M. ....Boston, Mass.
John Coghlan, M. C. B. ....Boston, Mass.
Boston, Winthrop & Point Shirley R. R.
3 g. 10 m. 1 lo. 8 c.
C. A. Parks, Supt. ....Boston, Mass.
J. W. Davis, M. M. ....Winthrop, Mass.
Boston & Albany R. R. 4-8½ g. 372 m. 245 lo. 6,111 c.
W. H. Barnes, Gen. Man. ....Boston, Mass.
Edw. Gallup, Gen. Supt. ....Springfield, Mass.
A. B. Underhill, Supt. M. P. ..Springfield, Mass.
F. D. Adams, Gen. M. C. B. ....Allston, Mass.
J. T. Chamberlain, For. C. shop. Allston, Mass.
H. B. Chesley, Div. Supt. ....Boston, Mass.
G. H. Colby, Div. M. M. ....Boston, Mass.
C. E. Grover, Div. Supt. ..Springfield, Mass.
H. W. Eddy, Div. M. M. ..Springfield, Mass.
J. B. Weston, For. Car Sh. Springfield, Mass.
W. H. Russell, Jr., Div. Supt. E. Albany, N. Y.
T. B. Purvis, Div. M. M. ..East Albany, N. Y.
J. E. Doran, For. Car Sh. ..East Albany, N. Y.
Boston & Lowell R. R.
4-8½ g. 555 m. 147 lo. 3,262 cars.
C. S. Mellen, Gen. Supt. ....Boston, Mass.
F. H. Nourse, Pur. Agt. ....Boston, Mass.
Jas. K. Taylor, Supt. R. S. & M. Concord, N. H.
So. Div.: J. F. Crockett, Supt. ..Boston, Mass.
H. S. Kolseth, M. M. ....Boston, Mass.
No. Div.: Geo. A. Todd, Supt. ..Concord, N. H.
C. C. Aspinwall, M. M. ....Concord, N. H.
Wh. Mount Div.: W. A. Stowell, Supt. Concord, N. H.
Geo. A. Ferguson, M. M. ..Lake Village, N. H.
Boston & Maine R. R. 4-8½ g. 491 m. 209 lo. 4,660 c.
J. T. Furber, Gen. Man. ....Boston, Mass.
Geo. J. Fisher, Pur. Agt. ....Boston, Mass.
Wm. Smith, Supt. M. P. ....Boston, Mass.
D. C. Richardson, M. C. B. ..Lawrence, Mass.
West. Div.: Wm. Merritt, Jr., Supt. Boston, Mass.
East. Div.: D. W. Sanborn, Supt. ..Boston, Mass.
North Div.:
J. W. Sanborn, Supt. ..Wolfboro Junc., N. H.
Boston & N. Y. Air Line R. R. (See N. Y., N. H. & H.)
Boston & Providence R. R. 4-8½ g. 67 m. 52 lo. 1,006 c.
A. A. Folsom, Gen. Supt. & P. A. Boston, Mass.
Geo. Richards, M. M. ....Roxbury, Mass.
Jno. Lightner, M. C. B. ....Roxbury, Mass.
Bowling Green & Toledo R. R. 4-8½ g. 6 m. 2 lo. 4 c.
Wm. A. Wiggins, Gen. Man. Bowling Green, O.
Wm. A. Wiggins, Pur. Agt. ..Bowling Green, O.
Bradford, Bordell & Kinzua R. R. 3 g. 42 m. 6 lo. 82 c.
Bradford, Eldred & Cuba. 3 g. 54 m. 6 l. 158 c.
Tonawanda Valley & Cuba. 3 g. 60 m. 5 lo. 31 c.
J. V. D. Loomis, Supt. ....Attica, N. Y.
Jno. Delaney, M. M. & C. B. ....Bradford, Pa.
Brattleboro' & Whitehall R. R. 3 g. 36 m. 3 lo. 56 c.
(Operated by Central Vermont.)
Breakwater & Frankford R. R. (See Del., Md. & Va.)
Bridgton & Saco River R. R. 2 g. 16 m. 2 lo. 19 c.
Wm. F. Perry, Gen. Supt. ....Bridgton, Me.
M. M. Caswell, M. M. & Pur. Agt. Bridgton, Me.
Brighthope Ry. 3 g. 37 m. 4 lo. 193 cars.
Jas. R. Worth, Supt. ....Richmond, Va.
P. M. Buckingham, Pur. Agt. Richmond, Va.
A. Gary, Supt. Way & Works. Winterpock, Va.
Robt. Kredell, M. M. ....Chester, Va.
Brooklyn, Bath & Coney Island R. R.
4-8½ g. 7 m. 8 lo. 36 cars.
Geo. A. Gunther, Gen. Man. ..Brooklyn, N. Y.
Aug. Wolff, M. M. ....Brooklyn, N. Y.
Brooklyn, Flatbush & Coney Island Ry.
4-8½ g. 8 m. 8 lo. 54 c.
J. L. Morrow, Supt. & P. A. ..Brooklyn, N. Y.
Wm. Finley, M. M. ....Brooklyn, N. Y.
Brooklyn & Rockaway Beach R. R.
4-8½ g. 3 m. 2 lo. 18 cars.
Wm. Warner, Supt. ..East New York, N. Y.
Brunswick & Western R. R. 5 g. 172 m. 13 lo. 170 c.
H. S. Morse, Gen. Man. & P. A. ..Brunswick, Ga.
C. R. Will, Asst. Gen. Man. ..Brunswick, Ga.
W. R. Kline, M. M. ....Brunswick, Ga.
Buff., N. Y. & Phil. R. R. 3 & 4-8½ g. 655 m. 120 l. 6,339 c.
Geo. S. Gatchell, Gen. Supt. ..Buffalo, N. Y.
W. W. Halsey, Asst. to G. Supt. ..Buffalo, N. Y.
Allen Vail, M. M. ....Buffalo, N. Y.
Buff. Div.: Henry Dwyer, Supt. ..Buffalo, N. Y.
Roch. Div.: J. R. Watson, Supt. ..Olean, N. Y.
Pitts. Div.: E. H. Witter, Supt. ..Oil City, Pa.
H. J. Bookhammer, M. M. ....Oil City, Pa.
C. E. Turner, M. M. ....Olean, N. Y.
Burlington, Cedar Rapids & Northern Ry.
4-8½ g. 989 m. 96 lo. 4,206 cars.
C. J. Ives, Pres. & Gen. Supt. Cedar Rapids, Ia.
Robt. Williams, Gen. Supt. ..Cedar Rapids, Ia.
T. Stickney, Pur. Agt. ....Cedar Rapids, Ia.
R. W. Bushnell, M. M. & C. B. Cedar Rapids, Ia.
Burlington & Lamoille R. R. 4-8½ g. 35 m. 4 lo. 64 c.
G. L. Linsley, Gen. Man. & Supt. Burlington, Vt.
F. G. Brownell, M. M. ....Burlington, Vt.
Burlington & Mo. Riv. R. R. (in Neb.) (See C. B. & Q.)
Burlington & North-West'n Ry. 3 g. 38 m. 3 lo. 97 c.
Burlington & Western R. R. 3 g. 15 m. 38 c.
E. S. Edger, Supt. ....Burlington, Ia.
Burlington & Ohio River R. R. 4-8½ g.
R. Tanner, Pur. Agt. ....Chicago, Ill.

C

California Northern R. R. 4-8½ g. 26 m. 2 lo. 17 c.
Andrew J. Binney, Gen. Man. ..Marysville, Cal.
California Southern R. R. 4-8½ g. 127 m. 13 lo. 301 c.
J. N. Victor, Supt. ....National City, Cal.
J. M. Keith, M. M. ....National City, Cal.
Cambridge & Seaford. (See Penna. R. R.; (4) Div.)
Camden & Atlantic R. R. (See Penna. R. R.; (2) Div.)
Canada Southern Ry. (See Mich. Cen.; (2) Div.)
Canada Atlantic Ry. 4-8½ g. 135 m.
D. C. Linsley, Man. ....Ottawa, Ont.
M. Donaldson, M. M. ....Ottawa, Ont.
Canadian Pacific R. R. 4-8½ g. 1,742 m. 118 l. 2,726 c.
W. C. Van Horne, Gen. Man. ..Montreal, Can.
Francis R. F. Brown, Mech. Supt. Montreal, Can.
W. H. Kelson, Gen. Storekeeper Montreal, Can.
E. Div.: Archer Baker, Gen. Supt. Montreal, Can.
W. Div.: J. M. Egan, Gen. Supt. ..Winnipeg, Man.
Ontario Div.: W. White, Gen. Supt. Montreal, Can.
Cape F'r & Yadkin Val. R. R. 4-8½ g. 112 m. 7 lo. 60 c.
W. M. S. Dunn, Gen. Supt. ..Fayetteville, N. C.
Isaac W. Clark, M. M. & C. B. Fayetteville, N. C.
Cape Girardeau Southwestern Ry.
4-8½ g. 52 m. 3 lo. 51 cars.
Louis Houck, Gen. Man. ..Cape Girardeau, Mo.
W. A. Penney, Supt. ....Cape Girardeau, Mo.
D. L. Meyers, Pur. Agt. ..Cape Girardeau, Mo.
Fred Glover, M. M. ....Cape Girardeau, Mo.
Carolina Central R. R. (See Ral. & Aug.)
Carillon & Grenville Ry. 5-6 g. 13 m.
R. W. Shepard, Pres. ....Montreal, Can.
Carson & Colorado R. R. (See Va. & Truckee).
Catasauqua & Fogelsville. 4-8½ g. 25 m. 6 lo. 581 c.
C. W. Chapman, Supt. & P. A. Catasauqua, Pa.
J. Thomas, M. M. ....Hokendauqua, Pa.
Chas. J. Holbach, M. C. B. ..Catasauqua, Pa.
Catskill Mountain R. R. 3 g. 16 m. 2 lo. 26 cars.
Charles A. Beach, Supt. ....Catskill, N. Y.
Cazenovia, Canastota & De Ruyter. (See U., I. & E.)
Central and South-Western Railroads (Ga.).
5 g. 1,115 m. 145 lo. 2,008 cars.
W. G. Raoul, Pres. ....Savannah, Ga.
Wm. Rogers, Gen. Supt. ....Savannah, Ga.
C. H. Carson, Pur. Agt. ....Savannah, Ga.
Cen. Div.: D. D. Arden, M. M. ..Savannah, Ga.
T. F. Warwick, M. M. ....Augusta, Ga.
F. Devine, M. C. B. ....Savannah, Ga.
So.-West'n Div.: T. D. Kline, Supt. ..Macon, Ga.
D. M. Gugel, M. M. ....Macon, Ga.
James A. Knight, M. C. B. ....Macon, Ga.
Central R. R. of N. J. (See Phil. & Read.; N. J. Cen. Div.)
Central R. R. of S. C. (See Wil. & Wel.)
Central American & Pacific Ry. 3 g. 67 m. 1 lo. 11 c.
W. C. Fitzsimmons, Gen. Supt. ..Escuintla, Guat.
Central Branch Union Pac. (See Mo. Pac.; (3) Div.)
Central Iowa Ry. 4-8½ g. 412 m. 50 lo. 2,313 cars.
E. L. Dudley, Supt. ....Marshalltown, Ia.
J. G. Johnston, Asst. Supt. ..Marshalltown, Ia.
D. D. Phelps, Asst. Supt. ....Monmouth, Ill.
C. H. Ackert, Pur. Agt. ....Marshalltown, Ia.
John Player, M. M. & M. C. B. Marshalltown, Ia.
Central Ontario Ry. 4-8½ g. 33 m. 4 lo. 66 cars.
J. B. McMullen, Gen. Man. ....Picton, Ont.
James Falconar, M. M. ....Trenton, Ont.
Central Pac. R. R. 4-8½ g. 4,303 m. 382 lo. 11,260 c.
A. N. Towne, Gen. Man. ..San Francisco, Cal.
J. A. Fillmore, Gen. Supt. ..San Francisco, Cal.
R. H. Pratt, A. G. Supt. ..San Francisco, Cal.
J. R. Watson, Gen. Pur. Agt. ..Sacramento, Cal.
A. J. Stevens, Gen. M. M. ..Sacramento, Cal.
W. McKenzie, Asst. G. M. M. ..Sacramento, Cal.
Benj. Welch, Gen. M. C. B. ..Sacramento, Cal.
G. J. Turner, Asst. G. M. C. B. Sacramento, Cal.
Western: Visalia & Tulare Divs. and Northern Ry.
A. D. Wilder, Supt. ....W. Oakland, Cal.
G. D. Welch, M. M. (W. Div.) W. Oakland, Cal.
W. B. Ludlow, M. C. B. (W. Div.) do.
S. Johnson, M. M. (T. Div.) ....Tulare, Cal.
J. B. Wright, Supt. ....Sacramento, Cal.
M. W. Cooley, M. M. (S. Div.) ..Rocklin, Cal.
Truckee Div.: J. H. Whited, Supt. Wadsworth, Nev.
Geo. Gregg, M. M. ....Wadsworth, Nev.
Wm. McPherson, F. Car Sh. ..Wadsworth, Nev.
Humb't Div.: G. W. Coddington, Supt. Carlin, Nev.
W. F. Smith, M. M. ....Carlin, Nev.
J. C. Doughty, For. Car Sh. ..Carlin, Nev.
Salt Lake Div.: A. G. Fell, Supt. ..Ogden, Utah.
James Lamb, M. M. ....Terrace, Utah.
A. Sherburne, For. Car Sh. ..Ogden, Utah.
St. & Cop. R. R.: R. L. Myrick, Supt. ..Stockton, Cal.
Los Angeles; and Yuma Divs. (So. Pac.):
E. E. Hewitt, Asst. Supt. ..Los Angeles, Cal.
James Velsir, M. M. ....Los Angeles, Cal.
T. T. Gilleland, For. Car Sh. Los Angeles, Cal.
Arizona Divs. (So. Pac.):
J. A. Muir, Asst. Supt. ....Tucson, Ariz.
W. F. Smith, M. M. ....Tucson, Ariz.
Rio Grande (S. Pac.) & El Paso (G. H. & S. A.) Divs.:
C. B. Seymour, Supt. ....El Paso, Texas.
J. L. Bonner, M. M. ....El Paso, Texas.
H. C. Standish, For. Sh. ..El Paso, Texas.
Central Texas & N'w'n R. R. (See Hous. & Tex. Cen.)
Central Vermont R. R. 4-8½ g. 864 m. 185 lo. 2,789 c.
J. W. Hobart, Gen. Man. ....St. Albans, Vt.
J. M. Foss, Gen. Supt. ....St. Albans, Vt.
W. J. Robertson, Supt. M. P. ..St. Albans, Vt.
No. Div.: I. B. Futvoye, Supt. ..St. Johns, P. Q.
Rut. Div.: J. Burdett, Supt. ....Rutland, Vt.
N. L. Davis, M. M. & C. B. ....Rutland, Vt.
Brattleboro & Whitehall R. R., and
Brat. Div.: E. F. Brooks, Supt. ..Brattleboro, Vt.
New London No'n R. R. 143 m. 22 lo. 303 c.
C. F. Spaulding, Supt. & P. A. New London, Ct.
A. J. Robertson, M. M. ....New London, Ct.
S. O. Banks, M. C. B. ....New London, Ct.
Chagrin Falls & Southern R. R. 3 g. 6 m. 1 lo. 12 c.
W. Hutchings, Gen. Man. ..Chagrin Falls, O.
J. W. Williams, Gen. Supt. ..Chagrin Falls, O.
Charleston & Savannah Ry. 5 g. 115 m. 15 lo. 200 c.
H. S. Haines, Gen. Man. ....Savannah, Ga.
C. S. Gadsden, Gen. Supt. ..Charleston, S. C.
H. A. Ulmo, M. M. ....Savannah, Ga.
Charlotte, Columbia & Augusta R. R. (See Rich. & D.)
Chateaugay R. R. 3 g. 34 m. 8 lo. 380 cars.
A. L. Inman, Gen. Man. ....Plattsburg, N. Y.
J. M. Davies, Supt. ....Lyon Mountain, N. Y.
M. L. French, Asst. Supt. ..Plattsburg, N. Y.
Chatham Ry. 4-8½ g. 9 m.
J. B. Snowball, Man. ....Chatham, N. B.
Chattaroi Ry. 4-8½ g. 51 miles 11 loco. 483 cars.
F. H. Oliphant, Gen. Man. & P. A. Ashland, Ky.
J. R. Martin, M. M. ....Ashland, Ky.
Joseph P. Burleigh, M. C. B. ..Ashland, Ky.
Cheraw & Chester R. R. (See Rich. & Dan.; (2) Div.)
Cheraw & Darlington R. R. (See Wil. & Wel.)
Cheraw & Salisbury R. R. (See Wil. & Wel.)
Cherokee R. R. (See East & West.)
Cherry Valley R. R. 4-8½ g. 6 m. 3 lo. 6 cars.
E. T. Herndon, Supt. ....Midland, Mo.
Chesapeake, Ohio & South-Western.
4-9 g. 398 m. 62 lo. 1,345 c.
Jas. L. Frazier, Supt. ....Louisville, Ky.
H. E. Huntington, Pur. Agt. ..Louisville, Ky.
J. A. Dew, Mast. Trans. ....Paducah, Ky.
R. H. Briggs, Supt. M. P. ....Paducah, Ky.
D. L. Weaver, M. M. ..Elizabethtown, Ky.
Jno. Fitzgerald, M. M. ....Paducah, Ky.
Chesapeake & Ohio Ry. 4-8½ g. 642 m. 169 l. 5,120 c.
C. W. Smith, Gen. Man. ....Richmond, Va.
D. A. Sweet, Asst. to Gen. Man. Richmond, Va.
A. S. Emmons, Pur. Agt. ....Richmond, Va.
T. L. Chapman, Supt. M. P. ..Richmond, Va.
Eastern Div.: A. H. Wood, Supt. ..Richmond, Va.
J. N. King, M. C. B. ....Richmond, Va.
J. B. Pierce, M. M. ....Richmond, Va.
Hunt. Div.: W. B. Ryder, Supt. ..Hinton, W. Va.
W. H. Thomas, M. M. ..Huntington, W. Va.
H. C. Bassinger, M. C. B. Huntington, W. Va.
Lex. Div.: J. D. Yarrington, Supt. Lexington, Ky.
S. R. Tuggle, M. M. ....Lexington, Ky.
K. C. Div.: G. W. Bender, Supt. ..Covington, Ky.
W. T. Smith, M. M. ....Covington, Ky.
Cheshire R. R. 4-8½ g. 80 m. 31 lo. 531 cars.
R. Stewart, Gen. Man. ....Keene, N. H.
H. H. Stone, Pur. Agt. ....Keene, N. H.
F. A. Perry, M. M. ....Keene, N. H.
A. E. Howard, M. C. B. ....Keene, N. H.
Chester & Lenoir Ry. (See Rich. & Dan.; (3) Div.)
Chicago, Bur. & Kan. City Ry. (See C. B. & Q.)
Chicago, Burlington & Quincy R. R.
4-8½ g. 3,608 m. 545 lo. 21,012 cars.
T. J. Potter, Gen. Man. ....Chicago, Ill.
(1) C., B. & Q., East of Mo. Riv.
H. B. Stone, Asst. Gen. Man. ..Chicago, Ill.
Wm. Irving, Gen. Pur. Agt. ..Chicago, Ill.
G. W. Rhodes, Supt. M. P. ....Aurora, Ill.
Wm. Forsyth, Mech. Eng. ....Aurora, Ill.
Ill. Divs.: J. D. Besler, Supt. ..Galesburg, Ill.
Chi. Div.: Geo. Alexander, Supt. ..Aurora, Ill.
L. E. Johnson, M. M. ....Aurora, Ill.
Galesburg Div.: F. C. Rice, Supt. Galesburg, Ill.
Robert Colville, M. M. ....Galesburg, Ill.
St. L. Div.: W. C. Brown, Supt. ..Beardstown, Ill.
A. Forsyth, M. M. ....Beardstown, Ill.
Ia. & Mo. Divs.: W. F. Merrill, Supt. Burlington, Ia.
East. Div.: O. E. Stewart, Supt. ..Burlington, Ia.
Joel West, M. M. ....Burlington, Ia.
Mid. Div.: J. B. Maxon, Supt. ..Ottumwa, Ia.
West'n Div.: J. H. Duggin, Supt. ..Creston, Ia.
C. W. Eckerson, M. M. ....Creston, Ia.
Chi., B. & Kan. C'y and St. L., Keo. & No.-W'n Rys.
Robt. Law, Gen. Supt. ....Keokuk, Ia.
W. H. Bartlett, M. M. ....Burlington, Ia.
(2) C. B. & Q., West of Mo. Riv.
G. W. Holdrege, Asst. Gen. Man. Omaha, Neb.
C. M. Wead, Supply Agt. ....Omaha, Neb.
D. Hawksworth, M. M. ....Plattsmouth, Neb.
C. M. Wead, Storek'pr. ....Plattsmouth, Neb.
Bur. & Mo. Riv. & Neb. Ry. Divs.:
T. E. Calvert, Gen. Supt. ....Lincoln, Neb.
D. E. Thompson, Supt. ....Lincoln, Neb.
E. Bignell, M. M. ....Lincoln, Neb.
R. V. Div.: A. Campbell, Supt. ..McCook, Neb.
A. & N. Div.: J. McConniff, Supt. ..Lincoln, Neb.
Chicago, Fairchild & Eau Claire R. R.
4-8½ g. 22 m. 4 lo. 28 cars.
N. C. Foster, Gen. Man. ....Fairchild, Wis.
C. I. Wickersham, Pur. Agt. ....Chicago, Ill.
Chicago, Iowa & Dakota Ry. 4-8½ g. 26 m.
John Porter, Gen. Man. ....Eldora, Ia.
Chicago, Milwaukee & St. Paul R. R.
4-8½ g. 5,201 m. 626 lo. 19,018 cars.
Roswell Miller, Gen. Man. ..Milwaukee, Wis.
Jos. F. Tucker, Asst. Gen. M. Milwaukee, Wis.
J. T. Clark, Gen. Supt. ....Milwaukee, Wis.
A. J. Earling, Asst. Gen. Supt. Milwaukee, Wis.
J. T. Crocker, Pur. Agt. ....Milwaukee, Wis.
J. M. Lowry, Gen. M. M. ....Milwaukee, Wis.
E. Fairbairn, M. M. ....Milwaukee, Wis.
John Baillie, Supt. Car Dept. ..Milwaukee, Wis.
W. E. Kittridge, M. C. B. ....Milwaukee, Wis.
(1) C. & M. and C. & C. B. in Ill.:
G. O. Clinton, Supt. ....Chicago, Ill.
Ch. & C. B. in Ia.:
R. B. Campbell, Supt. ....Marion, Wis.
La C. & Wis. Val. Divs.:
W. G. Collins, Supt. ....Milwaukee, Wis.
P. du C. & M. Pt. Divs.:
S. J. Collins, Supt. ....Milwaukee, Wis.
(2) C. H. Prior, Asst. Gen. Supt. ..Minneapolis, Minn.
H. & D. Div.: W. M. Kellie, Supt. do.
J. O. Pattie, M. M. ....Minneapolis, Minn.
Ia. & Minn. Div.: H. R. Williams, Supt. do.
S. Minn. Div.: F. D. Underwood, Supt. Lacrosse, Wis.
Riv. & Dub. Divs.: C. W. Case, Supt. Dubuque, Ia.
S. Charnley, M. M. ....Dubuque, Ia.
Ia. & Da. Div.: G. W. Sanborn, Supt. Mason City, Ia.
S. Cy. & Da. Div.: W. J. Underwood, Supt. Sioux Cy., Ia.
F. H. Moulton, M. M. ....Yankton, Dak.
J. M. Horan, For. ....Yankton, Dak.
(3) D. A. Olin, Asst. Gen. Supt. ....Racine, Wis.
R. & S. W. Divs.: D. L. Bush, Supt. ..Racine, Wis.
John Taylor, M. M. ....Racine, Wis.
(4) Northern Div.: L. B. Rock, Supt. Milwaukee, Wis.
Wm. E. Kittredge, M. C. B. ..Milwaukee, Wis.
Chicago, Rock Island & Pac. Ry.
4-8½ g. 1,381 m. 309 lo. 8,367 cars.
R. R. Cable, Pres. & Gen. Man. ..Chicago, Ill.
A. Kimball, V. P. & Gen. Supt. ..Chicago, Ill.
H. F. Royce, Asst. G. Supt. ..Davenport, Ia.
F. A. Marsh, Pur. Agt. ....Chicago, Ill.
T. B. Twombly, Gen. M. M. ....Chicago, Ill.
B. K. Verbryck, Gen. M. C. B. ....Chicago, Ill.
Ill. Div.: R. H. Chamberlin, Supt. ..Chicago, Ill.
R. Biester, M. M. ....Chicago, Ill.
Sam'l Pullman, M. C. B. ....Chicago, Ill.
Ia. Divs.: Jno. Given, Supt. ..Des Moines, Ia.
J. G. Crockett, M. M. ....Stuart, Ia.
Jas. E. Morrill, M. M. ....Davenport, Ia.
Chas. M. Leonard, M. C. B. ..Davenport, Ia.
K. & Des. M. Div.: Jno. Given, Supt. Des Moines, Ia.
S. W. Wakefield, M. M. ....Keokuk, Ia.
Henry Kummer, M. C. B. ....Keokuk, Ia.
So.-Wn. Div.: G. F. Walker, Supt. ..Trenton, Mo.
R. O. Carscadin, M. M. ....Trenton, Mo.
Chas. R. Best, M. C. B. ....Trenton, Mo.
Chicago, Saginaw & Canada R. R. (See Det., L. & N.
Chicago, St. Louis & New Orleans R. R. (See Ill. Cen.
Chicago, St. Louis & Pittsburgh R. R.
4-9 g. 635 m. 202 lo. 3,510 cars.
James McCrea, Manager ....Columbus, O.
Wm. Mullins, Gen. Pur. Agt. ..Pittsburgh, Pa.
Edward B. Wall, Supt. M. P. ..Columbus, O.
1, 3 & 5 Divs.: J. F. Miller, Supt. Richmond, Ind.
Robert Curtis, M. M. ....Columbus, O.
J. L. Copeland, G. F. Car Shops Columbus, O.
Wm. Swanston, M. M. ..Indianapolis, Ind.
W. C. Arp, Gen. For. ..Indianapolis, Ind.
2 & 4 Divs.: Chas. Watts, Supt. Logansport, Ind.
W. W. Reynolds, M. M. ..Logansport, Ind.
Chas. H. Starr, G. F. C. Shops, Logansport, Ind.
Chicago, St. Louis & Wn. R. R. 4-8½ g. 152 m. 11 lo. 1,790 c.
F. E. Hinckley, Gen. Man. ....Chicago, Ill.
B. T. Lewis, Pur. Agt. ....Chicago, Ill.
A. H. Crocker, Supt. ....Streator, Ill.
J. N. Chilson, M. C. B. ....Streator, Ill.
Chicago, St. Paul, Minneapolis & Omaha Ry.
4-8½ g. 1,301 m. 181 lo. 5,459 cars.
J. M. Whitman, Gen. Supt. ..St. Paul, Minn.
W. H. S. Wright, Pur. Agt. ..St. Paul, Minn.
Matt. Ellis, M. M. ....St. Paul, Minn.
J. J. Ellis, Asst. M. M. ....St. Paul, Minn.
H. L. Preston, M. C. B. ....Hudson, Wis.
Ea. & No. Div.: A. A. Hobart, Supt. St. Paul, Minn.
St. Paul and Sioux City Div.:
H. Spencer, Supt. ....St. James, Minn.
H. C. Anderson, Asst. M. M. ..Sioux Cy., Ia.
Neb. Div.: Jas. McCabe, Supt. ..Omaha, Neb.
Chic., Tex. & Mexican Cent. Ry. (See Gulf, C. & S. F.)
Chicago & Alton R. R. 4-8½ g. 849 m. 213 lo. 6,168 c.
C. H. Chappell, Gen. Man. ....Chicago, Ill.
T. M. Bates, Supt. of Trans. ..Bloomington, Ill.
A. V. Hartwell, Pur. Agt. ....Chicago, Ill.
Wm. Wilson, Supt. of Mach. ..Bloomington, Ill.
Jos. Townsend, G. For. Car Dept. do.
Chi. Div.: A. M. Richards, Supt. Bloomington, Ill.
St. L. & K. C. Div.: S. D. Reeves, Supt. Roodhouse, Ill.
L. H. Miller, M. M. ....Slater, Mo.
Chicago & Atlantic Ry. 4-8½ g. 269 m.
F. Broughton, Gen. Man. ....Chicago, Ill.
J. H. Parsons, Supt. ....Chicago, Ill.
C. J. Domville, M. M. ....Huntington, Ill.
Chi. & East'n Ill. 4-8½ g. 252 m. 56 lo. 3,870 cars.
O. S. Lyford, Gen. Supt. ....Chicago, Ill.
D. R. Patterson, Pur. Agt. ....Chicago, Ill.
P. W. Drew, M. Trans. ....Chicago, Ill.
Allen Cooke, M. M. ....Danville, Ill.
Chicago & Grand Trunk Ry. (See Grand Trunk.
Chicago & Great Southern Ry.
4-8½ g. 124 m. 4 lo. 122 c.
Geo. C. Kimball, Gen. Man. ....Attica, Ind.
H. Crawford, Jr., Supt. ....Chicago, Ill.
Chicago & Iowa R. R. 4-8½ g. 104 m. 18 lo. 237 cars.
T. J. Potter, Gen. Man. ....Chicago, Ill.
W. H. Holcomb, Gen. Supt. ....Rochelle, Ill.
H. S. Bryan, M. M. ....Aurora, Ill.
Chicago & Northwestern Ry.
4-8½ g. 3,761 m. 647 lo. 21,200 cars.
Marvin Hughitt, 2d V. Prs. & G. M. Chicago, Ill.
C. C. Wheeler, Gen. Supt. ....Chicago, Ill.
R. H. McCullough, Ass't Gen. Supt. Chicago, Ill.
R. W. Hamer, Pur. Agt. ....Chicago, Ill.
Geo. W. Tilton, Supt. M. P. & M.; and
Wm. Campbell, A. Supt. M. P. & M. Chicago, Ill.
Wis. Div.: Ed. J. Cuyler, Supt. ..Chicago, Ill.
Gal. Div.: Chas. Murray, Supt. ..Chicago, Ill.
Pen'a Div.: W. F. Fitch, Supt. ..Escanaba, Mich.
J. Symons, M. M. ....Escanaba, Mich.
Mad. Div.: C. A. Swineford, Supt. Baraboo, Wis.
H. D. Page, M. M. ....Baraboo, Wis.
Minn. & Dak. Divs.: S. Sanborn, Asst. Gen. Supt.
Wis., St. P. & Dak. Div.:
W. A. Scott, M. M. ....Winona, Minn.
Dak. Cen. Ry.: J. S. Oliver, Supt. ..Huron, Dak.
Ia. Div.: H. G. Burt, Supt. ....Boone, Ia.
Geo. W. Lowe, M. M. ....Clinton, Ia.
No. Ia. Div.: M. Hopkins, Supt. ..Eagle Grove, Ia.
Win. & St. P. Div.:
W. P. Cosgrave, Supt. ....Winona, Minn.
Chicago & West Michigan:
4-8½ g. 409 m. 47 lo. 1,629 cars.
J. B. Mulliken, V. P. & G. Man. Muskegon, Mich.
J. K. V. Agnew, Gen. Supt. Grand Rapids, Mich.
Allen Bourne, Pur. Agt. ....Detroit, Mich.
W. F. N. Davis, M. M. ....Muskegon, Mich.
Chicago & West'n Ind. R. R. 4-8½ g. 50 m. 12 lo. 150 c.
James D. Carson, Gen. Man. ....Chicago, Ill.
R. W. Johnson, M. M. ....Chicago, Ill.
Cincinnati, Columbus & Hocking Val. Ry.
4-9 g. 25 m. 2 lo. 77 cars.
D. P. Hyatt, Gen. Man. ....Dayton, O.
Cin., Georgetown & Portsmouth. 3 g. 35 m. 3 lo. 45 c.
M. Simmons, Supt. ....Cincinnati, O.
F. Enler, M. M. ....Cincinnati, O.
Cincinnati & Green River Ry. 5 g. 17 m. 2 lo. 50 c.
G. B. Harper, Supt. ....Yosemite, Ky.
Matt. Horton, M. M. ....Yosemite, Ky.
Cin., Hamilton & Dayton R. R. 4-9 g. 352 m. 92 l. 2,932 c.
W. F. Stark, Asst. Supt. ....Cincinnati, O.
John Black, Gen. M. M. ....Lima, O.
W. H. H. Allison, M. C. B. ....Cincinnati, O.
Cincinnati, Hamilton & Indianapolis R. R.
4-8½ g. 98 m.
C. J. Hepburn, Supt. ....Cincinnati, O.
Day. & Mich. Div.:
Cincinnati, Indianapolis, St. Louis & Chicago Ry.
4-8½ g. 384 m. 71 lo. 3,279 cars.
J. W. Sherwood, Supt. ....Indianapolis, Ind.

Geo. Tozzer, Pur. Agt.... ....Cincinnati, O.
J. S. Patterson, M. of Mach. & M. C. B. Cincinn., O
Cincinnati, New Orleans & Texas Pacific Ry. Co.
5 g. 846 m. 123 lo. 3,464 cars.
John Scott, Gen. Man.... .Cincinnati, O
Richard Carroll, Gen. Supt....Cincinnati, O.
R. W. Healey, Gen. Pur. Agt....Cincinnati, O.
James Meehan, S. M. P. & M... Cincinnati, O.
Cin. So. Div.: W. W. Wells, Supt..Somerset, Ky.
J. L. Tomlinson, Asst. S. M. P.. Ludlow, Ky
John Richardson, M. C. B.... .Cincinnati, O.
A. Thomson, M. M.....Chattanooga, Tenn
Ala. Gr. S'n Div.: D. McLaren, Supt., and
George Manuell, M. M...Chattanooga, Tenn
J. M. Kelly, M. C. B....Chattanooga, Tenn.
V. & M. Div.: E. F. Raworth, Supt., and
M. M....Vicksburg, Miss.
V. S. & P. Div.: F. Y. Dabney, Supt..Monroe, La.
W. Bell Smith, M. M. & C. B....Monroe, La.
New Orleans & North-Eastern R. R.
Edmund L. Tyler, Supt....New Orleans, La.
I. W. Fowle, M. M....Meridan, Miss.
Cincinnati Northern Ry.
Geo. L. Barringer, Gen. Man....Cincinnati, O.
Cincinnati, Richmond & Chicago R. R. 4-9 g. 37 m.
C. J. Hepburn, Supt....Cincinnati, O.
Cincinnati, Selma & Mobile R.R. 5 g. 71 m. 6 lo. 148 c.
A. McCollister, Supt....Selma, Ala.
H. L. Wright, Pur. Agt....Selma, Ala.
J. M. Levis, M. M.... ....Marion, Ala.
Cincinnati, Van Wert & Michigan R. R.
4-9 g. 94 m. 8 lo. 168 cars.
E. Garrison, Supt....Van Wert, O.
D. R. Ennis, Pur. Agt.... ....Van Wert, O.
H. H. Garr, M. M. & M. C. B....Van Wert, O.
Cin., Wabash & Mich. Ry. 4-8½ g. 165 m. 13 lo. 402 c.
Norman Beckley, Gen. Man. & P. A. Elkhart, Ind.
O. W. Lamport, Supt....Wabash, Ind.
S. B Tinker, M. M. & M. C. B...Wabash, Ind
Cin., Wash. & Balt. 4-8½ g. 312 m. 65 lo. 1,889 cars
Jas. H. Stewart, Gen. Man....Cincinnati, O.
Edw. Evans, M. M....Chillicothe, O.
T. G. Duncan, Supt. Car Dept....Zaleski, O.
Cincinnati, Wheeling & New York R.R. 4-8½ g. 13 m.
T. M. Atkinson, Gen. Man....Batesville, O.
Cincinnati & Eastern Ry. 3 g. 68 m. 6 lo. 133 cars.
4-8½ g. 50 m. 3 lo.
S. Woodward, Rec.... .... .. Cincinnati, O.
G. H. Wilber, Gen. Sup. & Pur. Agt. Cincinnati, O.
A. Donaldson, M. M....Newtown, O.
P. W. Naughton, M. M.... ....Batavia, O.
Cincinnati & South-Eastern Ry. 4-8½ g. 18 m.
John V. Patton, Gen. Man.... .Newport, Ky.
Clarksburg, Weston & Glenville R. R.
3 g. 26 m. 3 lo. 45 cars.
A. H. Kunst, Pres. & Gen. Man. Weston, W. Va.
Sam. A. Steel, M. M....Weston, W. Va.
F. Dillie, M. C. B.... .. ....Nottingham, O.
Cleveland, Columbus, Cincinnati & Indianapolis & St Louis Rys. and Dayton & Union R. R.
4-8½ g. 785 m. 246 lo. 7,988 cars.
E. B. Thomas, Gen. Man....Cleveland, O.
J. L. Yale, Pur. Agt.... ....Cleveland, O.
W. F. Turreff, Gen. M. M....Cleveland, O.
Col. & Cin. Div.: Robt. Blee, Supt .Cleveland, O.
Wm. Garstang, M. M....Cleveland, O.
A. G. Steinbrenner, G. For. Car Dept. do.
Ind'p'lis Div.: John O. Ewan, Supt. Ind'polis, Ind
T. W. Ranson, M. M.. ....Brightwood, Ind.
N. Mark, G. For. Car Dept. Brightwood, Ind.
Ind. & St L Ry.: Tho. Burrows, Supt. St. Louis, Mo.
T. W. Ranson, M. M. & C. B. Brightwood, Ind.
Day. & Un. Rd.: J. H. Barrett, Supt...Dayton, O.
H. S. Gordon, For. M. Shops ....Dayton, O.
Clevel'd, Delphos & St. Louis R.R. 3 g. 56 m. 3 lo. 39 c.
I. H. Burgoon, Gen. Man....Delphos, O.
B. F. Marshall, M. M....Delphos, O.
Cleveland, Indiana & St. Louis R. R.
4-8½ g. 19 m. 2 lo. 20 cars.
J. A. Larned, Rec. & Supt....Anderson, Ind.
Cleveland, Mt. Vernon & Delaware R. R.
4-9 g. 144 m. 24 lo. 886 c.
N. Monsarrat, Gen Supt....Akron, O.
G. M. Taylor, M. M. & C. B....Mt. Vernon, O.
Cleve., Youngstown & Pitts. R. R. 3 g. 30 m. 3 lo 138 c.
D. T. Lumley, Gen. Supt.. ....Alliance, O.
C. H. Dorman, M. M. & M C. B....Alliance, O.
Cleveland, Lorain & Wheeling Ry.
4-8½ g. 158 m. 31 lo. 1,878 cars.
Oscar Townsend, Gen. Man....Cleveland, O.
Wm. Thornburg, Supt.... ...Lorain, O.
A. Warburton, Gen. For....Lorain, O.
Cleve. & Marietta R. R. (See Wheel. & Lake Erie.)
Cleveland & Pittsburgh. (See Penna. Co.; (4) Div.)
Clifton & Port Hudson R. R. 4-8½ g. 22 m. 3 lo. 12 c.
John Bradley, Supt.... .New Orleans, La.
W. F. Lockwood, M. M.... ..Clinton La.
E. D. Anderson, M. M.... Vicksburg, Miss.
Clove Branch R. R. 4-8½ g. 8 m. 1 lo. 61 cars.
C. L. Kimball, Supt.... .Matteawan, N. Y.
W. G. Vanbuskirk, M. M...Dutchess Jc., N. Y.
Coburg, Peterborough & Marmora Ry.
5-6 g. 47 m. 5 lo. 255 cars.
Jas. R. Barber, Gen. Supt.... ....Cobourg, Ont.
Jas. Clark, M. M.... ....Cobourg, Ont
John Tinney, M. C. B....Cobourg, Ont.
Colorado Central R. R. (See Un. Pac.; (4) Div.)
Columbia & Greenville R. R. (See Rich. & D.; (3) Div.)
Columbia & Puget Sound R.R 3 g. 21 m. 7 lo. 114 c.
J. L. Howard, Gen. Supt.. San Francisco, Cal.
Columbus, Hocking Valley & Toledo Ry.
4-9 g. 324 m. 90 lo. 7,353 cars.
G. R. Carr, Gen. Supt....Columbus, O
W. M. Greene, Pur. Agt....Columbus, O.
Ira G. Hutchins, M. M.... ....Columbus, O.
J. M. Rockafield, M. C. B.... ....Columbus, O.
Tol. Div.: M. T. Seymour, Supt....Columbus, O.
Hock. V. Div.: M. P. L. Booth, Supt. Columbus, O.
Ohio Riv. Div.: C. D. Norris, Supt....Logan, O.
Columbus & Eastern R. R. In progress
J. E. Redfield, Pres.... ....Columbus, Ohio.
Columbus & Maysville Ry. (See Cin. & East.)
Columbus & Rome R. R. 3 g. 33 m. 3 lo. 30 cars.
M. E. Gray, Supt.... .. .Columbus, Ga.
Columbus & Western Ry. 5 g. 89 m. 6 lo. 53 cars
E. A. Flewellen, Gen. Man. ...Columbus, Ga.
R. A. Bridges, M. M.... ....Opelika, Ala.
Concord R. R. 4-8½ g. 141 m. 41 lo. 1,264 cars.
H. E. Chamberlin, Supt. & P. Agt. Concord, N. H.
J. T. Gordon, M. M. & C. B.. .Concord, N. H
Concord & Claremont R. R. (See Northern of N. H.
Conn. Riv. and Ver. Val. R. Rs. 4-8½ g. 130 m. 42 lo. 554 c.
J. Mulligan, Supt. & Pur. Agt. Springfield, Mass.
W. H. Stearns, M. M. & M. C. B. Springfield, Mass.
Conn. & Passumpsic Rivers R. R. (See Passumpsic)
Connotton Valley R. R. 3 g. 160 m. 26 lo. 1,036 cars.
Samuel Briggs, Gen. Man.... .Cleveland, O.
John Bean, M. M....Canton, O.
Cooperstown & Susquehanna Valley R. R.
4-8½ g. 16 m. 2 lo. 14 cars.
Andrew Shaw, Pres....Cooperstown, N. Y.
A. Mumford, M. M....Cooperstown, N. Y.
Corning, Cowanesque & Antrim Ry. (See Syr., G. & C.)
Cornwall R. R. 4-8½ g. 12 m. 5 lo. 166 cars
J. M. Havard, G. Supt. & M. M....Lebanon, Pa.
Levi Bloech, M. C. B....Lebanon, Pa.
Cornwall & Lebanon R. R. 4-9 g. 5 m.
J. C. Jennings, Supt.... ...Lebanon, Pa.
Coudersport & Port Allegheny R. R.
3 g. 17 m. 2 lo. 64 cars.
B. A. McClure, Gen. Supt....Coudersport, Pa.
Credit Valley Ry. 4-8½ g. 184 m. 22 lo. 535 cars.
Wm. Whyte, Gen. Supt.... ....Toronto, Ont.
John Macnab, Pur. Agt.... ....Toronto, Can.
D. Preston, Mech. Supt.... ...Toronto, Can.
Crescent Springs Ry. 3 g. 12 m. 2 lo. 50 c.
David Joyce, Gen. Man.... ...Lyons, Ga.
W. R. Bourm, Asst. Gen. Man. Shell Lake, Wis.
John Devereaux, Gen. Supt...Shell Lake, Wis.
C. I. Wickersham, Pur. Agt....Chicago, Ill.
Ira Wood, Supt. M. P. & M...Shell Lake, Wis.
John Blackburn, M. C. B....Shell Lake, Wis.
Crooked Creek R. R. 3 g. 9 m. 1 lo. 37 cars.
Walter C. Willson, Gen. Man. Webster City, Ia.
Geo. W. Post, Pur. Agt....Lehigh, Ia.
Crown Point Iron Co.'s R. R. 3 g. 13 m. 3 lo. 135 c.
A. L. Inman, Gen. Man.... .Plattsburg, N. Y.
H. L. Reed, Pur. Agt....Crown Point, N. Y.
Jas. McMann, Supt....Crown Point, N. Y.
C. W. Sanders, M. M....Crown Point, N. Y.

Cumberland Ry. 4-8½ g. 32 m. 1 lo. 64 c.
J. A. Killam, Gen. Man....Parsboro, N. S.
K. McKinnon, M. M....Parsboro, N. S.
Cumberland Valley R. R. 4-9 g. 127 m. 25 lo. 474 cars.
J. F. Boyd, Supt.... ....Chambersburg, Pa.
A. S. Hull, M. M.... ..Chambersburg, Pa.
C. Wieke, M. C. B.... ...Chambersburg, Pa.
Cumberland & Maurice River R. R. 4-8½ g. 20 m.
L. H. Dowdney, Supt....Port Norris, N. J.
Cumberland & Penn. R. R. 4-8½ g. 55 m. 28 lo. 625 c.
P. L. Burwell, Gen Supt & P A. Cumberland, Md.
N. W. Howson, Mast. of Mach. Mt. Savage, Md.
Nathan Binix, M. C. B.... ...Mt. Savage, Md.

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Danville & New River R. R. 3 g. 43 m. 2 lo. 30 c.
W. T. Sutherlin, Gen. Man....Danville, Va.
W. T. Whittaker, M. M....Danville, Va.
Danbury & Norwalk R. R. 4-8½ g. 36 m. 7 lo. 112 c.
C. M. Crawford, G. Supt. & P. A. S. Norwalk, Ct.
W. H. Wilkinson, M. M. & C. B. Danbury, Conn.
Danville, Mocksville & So.-Wn. R. R. 3 g. 28 m.
H. M. Shivler, Supt....Leakesville, N. C.
Danville, Olney & O. R. R.R. 4-8½ g. 78 m. 3 lo. 34 c.
C. E. Henderson, Rec. & Man....Olney, Ill.
W. A. Bell, M. M. & C. B.... ....Kansas, Ill
Dayton & Toledo R. R. 3 g. 96 m.
C. E. Henderson, Gen. Man.... ..Dayton, O
J. E. Gimperling, Supt....Dayton, O.
Dayton & Union R. R. (See Clev., Col., Cin. & Ind.)
Dayton & Michigan R. R. (See Cin., Ham. & Day.)
Dayton & Ironton R. R.
C. E. Henderson, Gen. Man. Indianapolis, Ind.
H. C. Norton, Pur. Agt... .Indianapolis, Ind.
E. Heisrodt, Supt. Mach.... ....Dayton, O.
Del. Lackawanna & W. and N. Y., Lack. & W. R. Rs.
4-8½ g. 930 m. 436 lo. 31,980 cars.
Wm. F. Halstead, Gen. Supt.. ...Scranton, Pa.
G. W. B. Cushing, Pur. Agt. ..New York, N. Y
Walter Dawson, Mast. of Mach...Scranton, Pa.
Robt. McKenna M. C. B.. . .Scranton, Pa.
Bloomsb'g Div.: C. Graham, M. M..Kingston, Pa.
Utica Div.: A. C. Salisbury, Supt....Utica, N. Y.
Thos. Thatcher, M. M....Utica, N. Y.
Morris & Essex Div.: Sussex; P. & D. and C. R. Rs.
A. Reasoner, Supt.... ....Hoboken, N. J.
W. H. Lewis, M. M.... Kingsland, N. J.
J. W. Baker, Mast. Car Rep. ....Dover, N. J.
Oswego & Syracuse Div.:
W. B. Phelps, Supt....Oswego, N. Y.
Jas. Buchanan, M. M. .. ..Syracuse, N. Y.
Syracuse, Binghamton & New York R. R.
4-8½ g. 81 m. 20 lo. 598 cars.
W. K. Niver, Gen. Supt... ...Syracuse, N. Y.
Jas. Buchanan, M. M....Syracuse, N. Y.
Cayuga Div.: W. R. Humphrey, Supt Ithaca, N. Y.
Buffalo Div.: T. B. Griffith, M. M..Buffalo, N. Y.
Delaware, Maryland & Virginia R. R.
4-8½ g. 101 m. 7 lo. 145 cars.
Tho. Groom, Supt.... ....Lewes, Del.
Geo. Messick, M. M....Lewes, Del.
W. H. Virden, M. C. B....Lewes, Del.
Delaware River R. R. 4-8½ g. 20 m. 3 lo. 8 cars.
E. H. Green, Supt....Pedricktown, N. J.
Delaware Western R. R. (See Balt. & Phil.)
Delaware & Chesapeake R. R. (See Penna.; (4) Div.)
Delaware & Hudson Canal Co.
4-3 and 4-8½ g. 634 m. 180 lo. 10,799 cars.
C. F. Young, Pres & Gen. Man. Honesdale, Pa.
H. G. Young, Asst. Gen. Man....Honesdale, Pa.
J. White Sprong, Pur. Agt....Albany, N. Y.
R. C. Blackall, Supt. of Mach....Albany, N. Y.
Susq. Div.: C. D. Hammond, Supt. Albany, N. Y.
Tho. Howard, M. M....Oneonta, N. Y.
J. R. Skinner, M. C. B. ....Oneonta, N. Y.
Sar. & Ch. Divs.: T. Voorhees, Supt...Troy, N. Y.
J. L. Corey, M. M.... .... Green Island, N. Y.
Chr. Körner, M. C. B.. .. Green Island, N. Y.
Pa. Div.: R. Manville, Supt & Pur Agt. and
S. H. Dotterer, M. M.... ....Carbondale, Pa.
T. Orchard, M. C. B.... ....Carbondale, Pa.
Denver Circle R. R. 3 g. 12 m. 7 lo. 15 cars
Theo. C. Henry, Gen. Man....Denver, Col.
T. W. Pelham, Gen. Supt....Denver, Col.
Denver, Utah & Pacific R. R. 3 g. 34 m. 4 lo. 171 c.
L. M. Fouts, Supt.... ....Denver, Col.
Denver & New Orleans. 4-8½ g. 140 m. 11 lo. 400 c.
C. W. Fisher, Gen. Man....Denver, Col.
Chas. Wheeler, Pur. Agt.... ....Denver, Col.
J. H. Kirk, M. M. & M. C. B. .. ..Denver, Col.
Denver & Rio Grande Ry. 3 g. 1,317 m. 222 lo. 5,932 c.
W. S. Jackson, Rec....Denver, Col.
C. M. Hobbs, Pur. Agt.... ....Denver, Col.
N. W. Sample, Supt. M. P. & M...Denver, Col.
(1) Col. & N. M. Div.: R. E. Ricker, G. S. Denver, Col
1st Div.: W. W. Borst, Supt....S. Pueblo, Col.
2d Div.: Cole Lydon, Supt.... ...Alamosa, Col.
3d Div.: G. W. Cook, Supt....Leadville, Col
4th Div.: R. M. Ridgway, Supt....Salida, Col.
Denver, Rio Grande & Western Ry. 3 g. 369 m
W. H. Bancroft, Rec. & Gen. Supt.,
Salt Lake City, Utah.
A. L. Horner, Ass't Supt. Salt Lake City, Utah.
S. C. Smith, M. M.... ...Salt Lake City, Utah.
Des Moines, Osceola & Southern R. R.
3 g. 100 m. 7 lo. 253 cars.
B. L. Harding, Gen. Man....Des Moines, Ia.
Henry Stivers, Supt....Osceola, Ia.
L. D. Berry, M. M... ....Osceola, Ia.
Elias Tonet, M. C. B....Osceola, Ia.
Des Moines & Ft. Dodge. 4-8½ g. 144 m. 13 lo. 350 c.
C. N. Gilmore, Supt....Des Moines, Ia.
John McGrayel, M. M....Grand Junction, Ia.
E. A. Avery, M. C. B....Grand Junction, Ia.
Det., Bay City & Alpena R. R. 3-2 g. 48 m. 5 lo. 227 c.
Milo Eastman, Supt.... East Tawas, Mich.
Det. Gr. H. & Mil. Ry. (See Grand Trunk.)
Det., Lansing & No'n R. R. 4-8½ g. 222 m. 84 lo. 1027 c
John B. Mulliken, Gen. Man....Detroit, Mich.
Allan Bourn, Pur. Agt....Detroit, Mich.
Thos. M. Fish, Gen. Supt....Ionia, Mich.
G. C. Watrous, M. M. & C. B....Ionia, Mich.
Det., Mack. & Marq. R.R. 4-8½ g. 152 m. 16 lo. 1,112 c.
D. McCool, Gen. Supt.... ....Marquette, Mich.
W. J. Tench, Pur. Agt....Marquette, Mich.
John B. Wilson, Mech. Supt....Marquette, Mich.
Dorchester & Delaware R.R. (See Penna. (4) Del. Div.)
Dubuque & Dakota R. R. 4-8½ g. 64 m. 2 lo. 54 cars.
A. C. Goodrich, Supt....Hampton, Ia.
W. S. Couch, Pur. Agt....Dubuque, Ia.
Duck River Valley R. R. (See Nash., Chat. & St. L.)
Dunkirk, Allegheny Valley & Pittsburgh R. R.
4-8½ g. 91 m. 14 lo. 102 cars.
D. Thayer, Gen. Supt....Dunkirk, N. Y.
R. C. Moore, Pur. Agt.... .New York, N. Y.
J. C. Haggett M. M. & C. B....Dunkirk, N. Y.

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East Alabama Ry. 5 g. 22 m. 3 lo. 19 cars.
W. W. Barnes, Supt....Opelika, Ala.
East Broad Top R. R. 3 g. 30 m. 7 lo. 260 cars.
A. W. Sims, Supt....Orbisonia, Pa.
A. W. Greenwood, M. M.... ....Orbisonia, Pa.
East St Louis & Carondelet Ry. 4-9 g. 4 lo. 27 c.
Joseph Hill, Gen. Supt....East St. Louis, Ill.
East Tenn. & Western North Car. R. R.
3 g. 34 m. 3 lo. 73 cars.
Thomas E. Matson, Supt. .Elizabethton, Tenn.
East Tennessee, Virginia & Georgia R. R.
5 g. 1,453 m. 166 lo. 3,670 cars.
Henry Fink, Rec....Knoxville, Tenn
C. H. Hudson, Gen. Man....Knoxville, Tenn.
J. F. O'Brien, Asst. Gen. Man. Knoxville, Tenn.
J. E. Wilcox, Pur. Agt. ....Knoxville, Tenn.
East Tenn. Div. and No. Car. and Ohio Branches.
F. K. Huger, Supt....Knoxville, Tenn
B. J. Sitton, M. M....Knoxville, Tenn.
Jos. Armbruster, M. C. B....Knoxville, Tenn.
Alabama Div.: J. M. Bridges, Supt...Selma, Ala.
Simon Gay, M. M.... ....Selma, Ala.
W. W. Pierce, M. C. B....Selma, Ala.
Memphis & Charleston R. R. (Div.):
R. B. Pegram, Jr., Supt.... Memphis, Tenn
H. N. Burford, M. M.... ....Memphis, Tenn
Georgia Div.: J. W. Fry, Supt....Atlanta, Ga.
J. E. Mallory, Ass't Supt.... ....Macon, Ga.
W. A. Walden, M. M.... ....Atlanta, Ga.
J. H. Perkins, M. C. B....Atlanta, Ga.
East & West R. R. of Ala. 3 g. 110 m. 9 lo. 85 c.
John Postell, Manager.... ....Cedartown, Ga.
M. M. & C. B....Cedartown, Ga.

Eastern R. R. 4-8½ g. 283 m. 110 lo. 2,268 cars.
Payson Tucker, Gen. Man....Boston, Mass.
D. W. Sanborn, Mast. of Trans..Boston, Mass.
G. F. Hurd, Pur. Agt.... ..Boston, Mass.
Amos Pilsbury, S. M. P. & M...E. Boston, Mass.
A. M. Waitt, G. For. Car Dept....Salem, Mass.
Con'y Div.: J. W. Sanborn, Supt., Wolfboro J., N. H.
Eastern Kentucky R. R. 4-8½ g. 34 m. 5 lo. 160 c.
H. W. Bates, Man. & Pur. Agt....Riverton, Ky.
H. W. Crawford, M. M.... ..Hunnewell, Ky.
Eastern (Maine) R. R. (See Maine Central.)
Eastern Shore R. R. 4-8½ g. 38 m. 3 lo. 9 c.
W. Thompson, Supt.... ....Princess Anne, Md.
F. Strattner, M. M.... Princess Anne, Md.
Elberton Air-Line R. R. (See Rich. & Dan. N. G. Brs.)
Elizabeth City & Norfolk R. R. (See Norfolk So.)
Elizabethtown, Lex. & Big Sandy R. R. (See Ches. & O.)
Elmira, Cortland & Northern R. R. 4-8½ g
A. A. McLeod, Gen. Man....Elmira, N. Y.
Edw. Mahler, Pur. Agt....Elmira, N. Y.
Thos. Kearsley, M. M. & M. C. B. Cortland, N. Y.
Emmitsburg R. R. (See Western Md.)
Erie & Huron Ry. 4-8½ g. 40 m.
E. O. Bickford, Gen. Man....Toronto, Ont.
Erie & Pittsburg R. R. (See Penna. Co.; (3) Div.)
Etowah & Deaton's R. R. 3 g. 9 m.
D. M. Rogers, Gen. Man....Etowah, Ga.
Eureka Springs Ry. 4-8½ g. 19 m. 1 lo. 9 cars.
Powell Clayton, Gen. Man. Eureka Springs, Ark.
Eureka & Palisade R. R. 3 g. 97 m. 7 lo. 125 cars.
B. Gilman, Gen. Supt. & Pur. Agt..Eureka, Nev.
J. M. Crawford, M. M....Palisade, Nev.
A. S. Longley, M. C. B.... ...Palisade, Nev.
European & North American R. R. (See Maine Cen.)
Evansville, Rockport & E'n Ry. 4-9 g. 71 m. 5 lo. 98 c
H. L. Shepard, Supt....Evansville, Ind.
Evansv. & Terre Haute. 4-8½ g. 169 m. 26 lo. 973 c.
D. J. Mackey, Gen. Supt.... Evansville, Ind.
John Torrance, M. M.... ....Evansville, Ind.

F

Fitchburg R. R., 4-8½ g. 152 m. 100 lo. 3,566 cars.
John Adams, Gen. Supt....Boston, Mass.
F. S. Pratt, Pur. Agt....Boston, Mass.
Orlando Stewart, Supt. M. P....Boston, Mass.
W. A. Foster, Asst. Supt. M. P..Fitchburg, Mass.
J. W. Marden, M. C. B.... Charlestown, Mass.
Flint & Pere Marq. 4-8½ g. 346 m. 78 lo. 2,664 cars.
H. C. Potter, Gen. Man.... E. Saginaw, Mich.
D. Edwards, Asst. Gen. Man..E. Saginaw, Mich
G. G. Cook, Pur. Agt....E. Saginaw, Mich.
Sanford Keeler, Gen. Supt..E. Saginaw, Mich.
W. F. Potter, Supt. (E. Div.)..E. Saginaw, Mich.
M. V. Meredith, Supt. (W. Div.) E. Saginaw, Mich.
T. J. Hatswell, M. M. .... .E. Saginaw, Mich.
H. M. Perry, M. C. B....E. Saginaw, Mich.
Florida Ry. & Nav. Co. 5 g. 488 m. 31 lo. 397 c.
D. E. Maxwell, Gen. Supt.... Fernandina, Fla.
R. V. Dohoney, M. M. & C. B Fernandina, Fla.
Florida Southern Ry. 3 g. 91 m. 6 lo. 96 cars.
Sherman Conant, Gen. Man.... ...Palatka, Fla.
Jas. D. Hollister, Supt....Palatka, Fla.
St. J. & L. Eustis Div.:
W. J. Jarvis, Supt.... ....Ft. Mason, Fla.
Fonda, Johnst'n & Gloversv. 4-8½ g. 26 m. 5 lo. 35 c.
Lawton Caten, Supt.... ....Gloversville, N. Y.
G. V. Putman, M. M.... Gloversville, N. Y.
Fond du Lac, Amboy & Peoria. 3 g. 30 m. 2 lo. 35 c.
Alonzo Kinyon, Supt. & P. A. Fond du Lac, Wis.
Fort Dodge & Fort Ridley R. R. (See Minn. & St. L.)
Franklin & Prov. & Hopkinton. 22 m.
E. T. Logee, Supt.... ....Milford, Mass.
Ft. Madison & No.-West'n Ry. 3 g. 45 m. 4 lo. 121 c.
S. B. Kenrick, Rec. & Pur. Agt. Ft. Madison, Ia
I. L. Lamb, M. M. & C. B.... Ft. Madison, Ia.
Ft. Wayne, Cin. & Louisv. 4-8½ g. 128 m. 10 lo. 250 c.
White Water R. R. 4-8½ g. 65 m. 5 lo. 170 cars.
W. W. Worthington, Gen. Supt...Ft. Wayne, Ind.
T. H. Haberkorn, M. M....Ft. Wayne, Ind.
Wm. Knight, M. C. B....Ft. Wayne, Ind.
Ft. Worth & Denver City Ry. 4-8½ g. 114 m. 8 lo. 443 c.
C. L. Frost, Gen. Supt ....Fort Worth, Tex.
Freehold & New York Ry. 4-8½ g. 15 m. 4 lo. 40 c.
J. E. Ralph, Supt. & Pur. Agt Freehold, N. J.
M. C. Mooney, M. M.... ....Freehold, N. J.
C. H. Snedeker, M. C. B.... Freehold, N. J.
Fulton County N. G. Ry. 3 g. 61 m. 4 lo. 168 cars.
A. C. Atherton, Gen. Supt. & P. Agt. Lewiston, Ill.

G

Gainesville & Dahlonega R. R. 3 g. 15 m.
W. P. Price, Pres....Dahlonega, Ga.
Gainesville, Jefferson & Southern R.R. (See Cen. of Ga)
Gal., Harrisburg & San Antonio Ry. (See Cen. Pac.)
Galveston, Houston & Hend. R.R. (See Mo. Pac. (5) Div.)
Galveston, Sabine & St. Louis Ry.
4-8½ g. 28 m. 2 lo. 33 cars
Brad. Barner, Gen. Man.... ..Longview, Tex.
Chas. H. Jewell, Gen. Supt....Longview, Tex.
Geneva, Ithaca & Sayre R. R. (See Lehigh Val.)
George's Creek & Cumberland R. R.
4-9 g. 25 m. 6 lo. 212 cars.
J. A. Millholland, Gen. Man..Cumberland, Md.
Georgetown & Lane's R. R. 5 g. 36 m. 2 lo. 52 c.
G. W. Earle, Gen. Supt....Georgetown, S. C.
Georgia R. R. 5 g. 307 m. 42 lo. 1,048 cars.
John W. Green, Gen. Man....Augusta, Ga.
John S. Cook, M. M.... Augusta, Ga.
T. M. Preval, M. C. B.... ....Augusta, Ga.
Georgia Pacific Ry. 5 g. 218 m.
I. Y. Sage, Gen. Supt....Birmingham, Ala.
S. H. Purcell, Div. Supt....Greenville, Miss.
G. H. Barnum, Div. Supt... ..Columbus, Miss.
Gettysburg & Harrisburg R. R. 4-9 g. 21 m.
W. H. Woodward, Supt. Pine Grove Furnace, Pa.
Grand Haven R. R. (See Chic. & W. Mich.)
Grand Junction Ry. (See Midland of Can.)
Grand Rapids, Indiana & Mackinaw. (See Gr. R. & I.)
G'd Rap., Newaygo & L. S. R. R. (See Chic. & W. M.)
Grand Rapids & Indiana. 4-9 g. 528 m. 56 lo. 2,083 c.
W. O. Hughart, Gen. Man. Grand Rapids, Mich.
W. R. Shelby, Pur. Agt....Grand Rapids, Mich.
S. D. Bradley, M. M.... Grand Rapids, Mich.
No'n Div.: J. M. Metheany, Supt. G'nd Rap., Mich.
So'n Div.: P. S. O'Rourke, Supt. Fort Wayne, Ind.
Grand Southern Ry. of New Brunswick.
4-8½ g. 82 m. 5 lo. 54 cars.
J. N. Greene, Gen. Man.... .St. George, N. B.
F. W. Holt, Supt.... ....St. George, N. B.
Thomas Logan, M. M.... .St. George, N. B.
Grand Tower & Carbondale. 4-8½ g. 25 m. 6 lo. 357 c.
J. C. Simpson, Supt....Carbondale, Ill.
Hugh Smith, M. M.... ....Murphysboro, Ill.
O. L. Garrison, Pur. Agt.... St. Louis, Mo.
Grand Trunk Ry. 4-8½ g. 2,332 m. 660 lo. 16,330 c.
Joseph Hickson, Gen. Man....Montreal, Can.
Wm. Wainright, Asst. Gen. Man. Montreal, Can.
Jno. Taylor, Gen. Storekeeper...Montreal, Can.
Herbert Wallis, Mech. Supt....Montreal, Can.
Wm. McWood, Supt. Car Dept...Montreal, Can.
J. Harkom, Ass. Mech. Supt..Richmond, P. Q.
A. H. Smith, Ass. Mech. Supt....Toronto, Ont.
R. Boaz, Asst. Mech. Supt.. ..Stratford, Ont.
F. L. Wanklyn, Loco. Works...Montreal, Can.
Gt. West'n Div.: Chas. Stiff, Supt. Hamilton, Ont.
E. Baines, Store Kpr.... ...London, Ont.
C. K. Domville, Mech. Supt...Hamilton, Ont.
E. Mavor, Asst. Mch. Supt... Hamilton, Ont.
J. D. McIlwain, Asst. Car Dept..London, Ont.
Chi. & Gr. Trunk Ry. 4-8½ g. 330 m. 103 lo. 1,191 c.
W. J. Spicer, Gen. Man.... Detroit, Mich.
W. H. Pettibone, Supt....Battle Creek, Mich.
J. F. Lorimer, Storekeeper....Detroit, Mich.
H. Roberts, Mech. Supt....Detroit, Mich.
Midland of Can. 4-8½ g. 471 m. 44 lo. 1,423 c.
W. B. Ferguson, Supt.... ....Peterboro, Ont.
J. D. Barnet, Mech. Supt....Port Hope, Ont.
Det., Gr. H. & Mil. Ry. 4-8½ g. 189 m. 39 lo. 696 c.
W. J. Spicer, Gen. Man.... ....Detroit, Mich.
John S. Lorimer, Storekeeper....Detroit, Mich.
W. J. Morgan, Supt....Detroit, Mich.
H. Roberts, Mech. Supt.... Port Huron, Mich.
Green Bay, Winona & St. Paul R. R.
4-8½ g. 250 m. 19 lo. 623 cars.
Timothy Case, Gen. Man. & P. A. Green Bay, Wis.
A. Fenwick, M. M.... Ft. Howard, Wis.
Green Cove Spring & Melrose R.R. 3 g. 32 m. 1 lo. 11 c.
S. Ackley, Pres....Philadelphia, Pa.
Greenwood, Laurens & Spart'g. 5 g. 4 lo.
J. N. Bass, Supt....Augusta, Ga.
T. F. Warwick, M. M. & M. C. B..Augusta, Ga.

Greenwich & Johnsonville Ry. 4-8½ g. 15 m. 1 lo. 7 c..
J. H. Thompson, Supt.... ...Greenwich, N. Y.
Gulf, Col. & Santa Fé Ry. 4-8½ g. 536 m. 51 lo. 1,400 c.
Webster Snyder, Gen. Man..Galveston, Texas.
Jno. W. Thorne, Pur. Agt....Galveston, Texas.
W. H. Reilly, M. M. & M. C. B..Galveston, Texas.
Gulf, W'n Texas & Pac. Ry. 4-8½ g. 68 m. 6 lo. 74 c.
M. D. Monserrate, Supt. & Pur. Agt. Cuero, Tex.
James Mooney M. M.... .. Cuero, Texas.

H

Hannibal & St. Jo. R. R. 4-8½ g. 292 m. 76 lo. 1,906 c.
J. F. Barnard, Gen. Man.... .St. Joseph, Mo.
S. E. Crance, Gen. Supt.... ....Hannibal, Mo.
Wm. Irving, Pur. Agt.... .... Chicago, Ill
N. J. Paradise, Supt. M. M.... ....Hannibal, Mo.
Chas. Coller, For. Car Dept. ....Hannibal, Mo.
Hanover Branch R. R. 4-8½ g. 8 m. 2 lo. 18 cars.
E. Y. Perry, Supt....South Hanover, Mass.
Hanover Junction, Hanover & Gettysburg R. R.
4-8½ g. 74 m. 10 lo. 140 cars.
H. D. Scott, Gen. Supt....Gettysburg, Pa.
John J. Bingley M. M....Hanover, Pa.
Jas. Harthorn, M. C. B.... ...Hanover, Pa.
Harrisburg & Potomac R. R. 4-8½ g. 41 m. 3 lo. 45 c.
R. H. Middleton, Supt....Boiling Springs, Pa.
Hartford & Conn. Val. R. R. 4-8½ g. 47 m. 9 lo. 196 c.
O. M. Shepard, Supt.... .... New Haven, Ct.
John Henry, Jr., Supt. M. P. Hartford, Conn.
Hartford & Conn. W'n R. R. 4-8½ g. 110 m. 16 lo. 495 c.
John F. Jones, Supt.... .. .Hartford, Ct.
J. C. Barton, M. M....Hartford, Ct.
Hartwell R. R. (See Rich. & Dan.; N. G. Brs.)
Hecla & Torch Lake R. R. 4-1 g. 5 m. 5 lo. 165 cars.
W. A. Childs, Gen. Man....Calumet, Mich.
Herkimer, Newport & Poland Ry.
3-6 g. 17 m. 2 lo. 24 cars.
Albert Wilber, Supt....Herkimer, N. Y.
Hobart & Manistee River R. R. 3 g. 9 m. 2 lo. 42 c.
H. W. Marsh, Supt....Hobart, Mich.
Hot Springs R. R. 3 g. 25 m. 3 lo. 39 cars.
J. N. Conger, Supt... ....Hot Springs, Ark.
L. Finlay, M. M....Malvern, Ark.
Housatonic R. R. 4-8½ g. 126 m. 23 lo. 879 cars.
W. H. Yeomans, Supt....Bridgeport, Ct.
D. S. Draper, Pur. Agt....Bridgeport, Ct.
N. Slingland, M. M.... ....Falls Village, Ct.
J. J. Ferris, M. C. B.... ...Falls Village, Ct.
Houston Belt Ry. 4-8½ and 3 gauge 16 miles.
S. L. Werden, V. P. & Gen. Man. Houston, Tex.
Houston, East & West Tex. Ry. 3 g. 150 m. 10 lo. 570 c.
Paul Bremond, Pr. & Pur. Agt..Houston, Tex.
E. L. Bremond, Gen. Man....Houston, Tex.
Ed. Campbell, M. M.... Houston, Tex.
C. F. Schelewa, M. C. B. .... Houston, Texas.
Houston & Tex. Cen. Ry. 4-8½ g. 750 m. 78 lo. 2,526 c.
J. Waldo, V. Pr. & Gen. Man....Houston, Tex.
A. H. Swanson, Gen. Tr. Man....Houston, Tex.
L. C. Noble, Gen. M. M....Houston, Tex.
James McGee, M. C. B....Houston, Tex.
So. & Wn. Divs.: M. G. Howe, Supt. Houston, Tex.
No. & Mi. Divs.: G. A. Quinlan, Supt., and
C. H. Burns, Asst. M. M.... .Corsicana, Tex.
No.-Wn. Div.: Donald Allen, Supt.... Waco, Tex.
Humeston & Shenandoah R. R.
4-8½ g. 113 m. 18 lo. 80 cars.
F. O. Wyatt, Gen. Man....Clarinda, Ia.
E. C. Murphy, Supt.... ....Clarinda, Ia.
M. B. Snyder, M. M. ....Shenandoah, Ia.
Huntingdon & Br. Top Mt. 4-8½ g. 65 m. 18 lo. 318 c.
Geo. F. Gage, Gen. Man. .. Huntingdon, Pa.
Samuel B. Knight, Pur. Agt..Philadelphia, Pa.
William Barkla M. M.... ....Saxton Pa.

I

Illinois Central R. R. 4-8½ g. 1,928 m. 334 lo. 8,565 c.
E. T. Jeffery, Gen. Supt.... .. .Chicago, Ill
O. Ott, Pur. Agt.... ....Chicago, Ill
Henry Schlacks, Supt. of Mach....Chicago, Ill.
W. B. Snow, M. M. Car Works....Chicago, Ill
(1) Ill. & Ia. Divs.: C. A. Beck, Supt....Chicago, Ill.
Chic. Div.: T. J. Hudson, Supt.. .... Cairo, Ill
Wm. Renshaw, M. M....Chicago, Ill.
Mid. Div.: H. L. Frisbie, Supt.. .... .Pontiac, Ill.
Spring. Div.: W. Wilkinson, Supt. Springfield, Ill.
Wm. Griffin, M. M.... ....Clinton, Ill.
No'n Div.: J. C. Jacobs, Supt....Amboy, Ill.
J. B. Edams, M. M.... ...Amboy, Ill.
Ia. Div.: M. Gilleas, Supt.... ... Dubuque, Ia.
Thos. W. Place, M. M.... ....Waterloo, Ia.
(2) So. Divs.: C. M. Sheafe, Supt....New Orleans, La.
La. Div.: J. M. Turner, Supt. McComb City, Miss.
W. B. McKenna, M. M....McComb City, Miss.
Miss. Div.: J. G. Mann, Supt....Jackson, Tenn.
J. F. White, M. M....Water Valley, Miss.
Illinois Midland Ry. 4-8½ g. 176 m. 12 lo. 611 cars.
D. H. Conklin, Rec. & Gen. Man....Decatur, Ill.
O. E. Grady, Train Mast....Decatur, Ill.
Frank Young, For. Shops.... Paris, Ill.
Illinois & St. Louis R. R. 4-8½ g. 19 m. 10 lo. 450 c
C. H. Sharman, Gen. Supt. & P. A. St. Louis, Mo
D. J. Timlin, M. M.... ....Belleville, Ill.
Charles Rothe, M. C. B.... .. E. St. Louis Ill
Indiana, Bloomington & Western Ry.
4-8¾ g. 826 m. 108 lo. 4,018 cars.
C. E. Henderson, Gen. Man. Indianapolis, Ind.
I. H. Wilson, Gen. Supt ....Indianapolis, Ind.
H. C. Norton, Pur. Agt.... Indianapolis, Ind.
Jos. S. Porter, Div. M. M....Sandusky, O.
B. Warren, Gen. M. M....Indianapolis, Ind.
M. Fogarty, Div. M. M.... ....Urbana, Ill.
W. B. Warren, Div. M. M... Indianapolis, Ind.
Indiana, Illinois & Iowa R.R. 4-8½ g. 104 m. 5 lo. 83 c.
F. M. Drake, Pres.... ... Kankakee, Ill.
T. P. Shonts, Gen. Supt.... Kankakee, Ill.
R. C. Ackley, M. M....Kankakee, Ill.
Indiana & Illinois Southern Ry. 3 g. 91 m. 3 lo. 69 c.
W. C. Lyon, Gen. Man. & P. Agt. Robinson, Ill.
J. S. Pickering, M. M. & C. B.. Effingham, Ill.
Indianapolis, Decatur & Springfield Ry.
Geo. Bender, Supt.... .... ..Indianapolis, Ind.
M. M.... ....Indianapolis, Ind.
Indianapolis & Evansville Ry. 4-8½ g. 54 m.
D. J. Mackey, Supt.... ....Evansville, Ind.
Indianapolis & St. Louis R. R. (See C., C., C. & I.)
Indianapo. & Vincennes R.R. (See Penna. Co.; (8) Div.)
Intercolonial Ry. 4-8½ g. 873 m. 163 lo. 4,589 cars.
David Pottinger, Chief Supt....Moncton, N. B.
T. V. Cook, Gen. Storekeeper...Moncton, N. B.
H. A. Whitney, Mech. Supt....Moncton, N. B.
Ewd. D. Shaffer, M. C. B....Moncton, N. B.
M. & C. Dist.: J. E. Price, Supt. Campbellton, N. B.
Hal. & St. J. Div.: J. J. Wallace, Supt..Truro, N. S.
Q. & St. F. Div.: A. R. McDonald, Supt. Riv. du Lp. Q.
International Ry. 4-8½ g. 69 m. 7 lo. 12 cars.
D. E. McFee, Supt....Sherbrooke, Que
J. Ruelle, M. M.... ....Sherbrooke, Que.
W. Charest, M. C. B....Sherbrooke, Que.
International & Gt. N'n R. R. (See Mo. Pac.; (5) Div.)
Iowa Falls & Sioux City R. R. (See Ill. Cen.)
Iron Ry. (See Tol., Cin. & St. L.)
Iron Mountain & Helena R. R. (See Mo. Pac.; (4) Div.)
Ithaca Auburn & Western Ry. (See Southern Cen.)

J

Jacksonville So.-E'n R. R. 4-8½ g. 54 m. 5 lo. 69 c.
E. S. Greenleaf, Supt....Jacksonville, Ill.
Ira F. Petrie, M. M....Jacksonville, Ill.
Jacksonville, St. Augustine & Halifax River Ry.
3 g. 76 m. 3 lo. 27 cars.
W. L. Crawford, Gen. Man..Jacksonville, Fla.
H. S. Ming, Supt.... ....Jacksonville, Fla.
Jacksonv., Pensacola & Mob. (See Fla. Cent. & W.)
Jacksonville, Tampa & Key West Ry. 5 g. 56 m.
G. W. Bentley, Gen. Man....Jacksonville, Fla.
M. R. Moran, Supt....Jacksonville, Fla.
F. B. Hurlbut, M. C. B....Jacksonville, Fla.
Jamesville & Washington R. R. (See Norfolk So'n.)
Jeffersonv'l, Madison & Indpls. R. R. (See (9) Pa. Co.)
Jersey City & Albany R. R. 4-8½ g. 38 m.
J. W. McCulloh, Manager ...Jersey City, N. J.
Jersey City & Bergen R. R. 4-10 g. 21 m. 2 lo. 13 c.
T. M. Sayre, Supt....Jersey City, N. J.
Jersey Shore, Pine Creek & Buff. Ry. (See Phil. & R.)
Junction & Breakwater R.R. (See Del., Md. & Va.

K

Kaaterskill R. R. 3 g. 8 m.
J. H. Jones, Supt.... ....Rondout, N. Y.
Kankakee & Seneca R.R. (See Cin., Ind., St. L. & Chi.
Kansas Central R. R. (See Union Pacific.
Kansas City, Fort Scott & Gulf R. R.
4-8½ g. 389 m. 75 l. 2,037 c.

Geo. H. Nettleton, Gen. Man..Kansas City, Mo.
L. W. Towne, Supt..........Kansas City, Mo.
H. P. Jacques, Pur. Agt.....Kansas City, Mo.
J. S. McCrum, M. M..........Kansas City, Mo.
A. N. Montier, M. C. B......Kansas City, Mo.
Kansas Cy, Lawrence & So. Kan. (See At., Top. & S. F.)
Kansas City, Springfield & Memphis R. R.
4-8½ g. 283 m. 10 lo. 456 cars.
George H. Nettleton, Pres....Kansas City, Mo.
L. W. Towne, Supt..........Kansas City, Mo.
H. P. Jacques, Pur. Agt.......Kansas City, Mo.
J. S. McCrum, M. M..........Kansas City, Mo.
A. N. Montier, M. C. B.......Kansas City, Mo.
Kansas City, St. Joseph & Council Bluffs; and St. Jo. & Des Moines R. Rs. 4-8½ & 3 g. 368 m. 41 lo. 1,148 c.
J. F. Barnard, Gen. Man.........St. Joseph, Mo.
J. R. Hardy, Supt..........St. Joseph, Mo.
D. H. Winton, Asst. Supt......St. Joseph, Mo.
A. B. Barnard, Asst. Supt....Kansas City, Mo.
Wm. Irving, Pur. Agt..........Chicago, Ill.
F. A. Chase, M. M..........St. Joseph, Mo.
Thos. Aylesbury, F. For. Car. Dep. St. Joseph, Mo.
Kansas City & Southern Ry. 4-8½ g. In progress.
Wm. Bailey, Pres..............Kansas City, Mo.
Kansas Coal Belt R. R. 4-8½ g. In progress.
C. H. Malin, Gen. Man..........Girard, Kan.
F. A. Hill, Supt...................Girard, Kan.
Kansas & Gulf Short Line R. R. 33 m. 2 lo. 32 cars.
Eli Culverhouse, Gen. Man..........Tyler, Tex.
V. K. Stevenson, Pur. Agt.....New York, N. Y.
Kendall & Eldred R. R. (See Buf., N. Y. & Phil.)
Kent Northern Ry. 4-8½ g. 27 m. 2 lo. 16 cars.
J. C. Brown, Gen. Man.....Richibucto, N. B.
Kentucky Central R. R. 4-9 g. 255 m. 28 lo. 640 cars.
G. W. Bender, Supt..........Covington, Ky.
W. T. Smith, M. of Mach.......Covington, Ky.
Kentucky & South Atlantic Ry. 3 g. 23 m. 3 lo. 52 c.
Geo. B. Harper, Supt. & P. A..Mt. Sterling, Ky.
Geo. W. Lewis, M. M..........Mt. Sterling, Ky.
Keokuk & Des Moines R.R. (See Chi., R. I. & Pac.)
Kinzua R. R. (See Buf., N. Y. & Phil.)
Kingston & Pembroke Ry. 4-8½ g. 104 m. 9 lo. 214 c.
B. W. Folger, Supt..........Kingston, Ont.
J. H. Taylor, Pur. Agt..........Kingston, Ont.
J. H. Taylor, M. M..........Kingston, Ont.
Knox & Lincoln R. R. 4-8½ g. 49 m. 6 lo. 119 cars.
C. A. Coombs, Supt..............Bath, Me.
Wm. A. Field, M. M..............Bath, Me.
C. L. Turner, M. C. B..............Bath, Me.
Knoxville & Augusta R. R. 5 g. 16 m. 2 lo. 34 cars.
R. N. Hood, Gen. Man. & P. Agt. Knoxville, Tenn.
J. M. Hood, Supt..........Knoxville, Tenn.

L

Lackawanna & Pittsburgh R. R. 3 g. 97 m.
Geo. W. Chapman, Rec.........Angelica, N. Y.
Lake Champlain & Moriah R.R. 4-8½ g. 8 m. 8 lo. 222c.
E. B. Hedding, Supt..........Port Henry, N. Y.
Lake Erie & Western Ry. 4-8½ g. 388 m. 53 lo. 1,701 c.
J. H. Cheney, Gen. Man.....Bloomington, Ill.
D. S. Hill, Gen. Supt..........Bloomington, Ill.
T. H. Perry, Pur. Agt..........Bloomington, Ill.
H. L. Cooper, Supt. of Equipment....Lima, O.
Lake George & Muskegon River R. R.
4-8½ g. 20 m. 4 lo. 79 cars.
W. S. Gerrish, Gen. Man... Muskegon, Mich.
Lake Shore & Michigan So'n Ry.
4-8½ g. 1,340 m. 547 lo. 17,115 cars.
John Newell, Pres..............Cleveland, O.
P. P. Wright, Gen. Supt..........Cleveland, O.
L. G. Higgins, Pur. Agt..........Cleveland, O.
G. W. Stevens, Supt. M. P.......Cleveland, O.
John Kirby, Gen. M. C. B.........Cleveland, O.
East'n Div.: C. B. Couch, Supt.....Cleveland, O.
J. S. Graham, M. M..........Buffalo, N. Y.
A. C. Robson, M. C. B..........Buffalo, N. Y.
L. O. Gassett, M. M..........Cleveland, O.
J. Withycombe, M. C. B.......Cleveland, O.
Frank. Div.: G. H. McIntire, Supt. Youngstown, O.
Toledo Div.: Thos. Flesher, Jr., Supt. Cleveland, O.
J. M. Sanborn, M. M..........Norwalk, O.
W. O. Smith, M. C. B..........Norwalk, O.
Mich. Divs.: J. E. Curtis, Supt..........Toledo, O.
Det. Brs.: T. J. Charlesworth, Supt. Detroit, Mich.
Lansing, Ypsilanti & Ft. Wayne Branches.
W. H. Caniff, Supt..........Hillsdale, Mich.
Western Div.: A. G. Amsden, Supt...Chicago, Ill.
W. L. Gilmore, M. M..........Elkhart, Ind.
Frank O. Bray, M. C. B..........Adrian, Mich.
Gr. Rap. Br.: M. E. Wattles, Supt. Kalamazoo, Mich.
Lake Tahoe R. R. 3 g. 10 m. 3 lo. 49 cars.
D. L. Bliss, Gen. Man..........Carson, Nev.
John T. Rogers, Gen. Supt......Carson, Nev.
Tho. Morris, M. M..............Carson, Nev.
Leavenworth, Topeka & So. W'n Ry. (See A. T. & S. F.)
Lebanon Springs R. R. 4-8½ g. 58 m. 5 lo. 44 c.
W. C. Alstyne, Gen. Man.......Albany, N. Y.
W. H. Hawkins, Pur. Agt.......Albany, N. Y.
Geo. Tefft, M. M..............Chatham, N. Y.
Lehigh Valley R. R. 4-8½ g. 495 m. 392 lo. 36,908 c.
H. S. Goodwin, Gen. Supt.......Bethlehem, Pa.
W. C. Alderson, Pur. Agt.....Philadelphia, Pa.
John I. Kinsey, M. M..........So. Easton, Pa.
John S. Lentz, M. C. B..........Packerton, Pa.
N. J. Div.: Jas. Donnelly, Supt. Perth Amboy, N. J.
Coal Rds.: J. I. Blakeslee, Supt. Mauch Chunk, Pa.
D. Clark, M. M..............Hazleton, Pa.
John Campbell, M. M..........Delano, Pa.
B. M. Div.: A. G. Brodhead, S. Mauch Chunk, Pa.
P. Hofecker, M. M..........Weatherly, Pa.
Wy. Div.: A. Mitchell, S. & M. M. Wilkesbarre, Pa.
Pa. & N. Y.: and Geneva, Ithaca & Sayre R. Rs.
Wm. Stevenson, Gen. Supt..........Sayre, Pa.
J. N. Weaver, M. M..............Sayre, Pa.
Jno. S. Lentz, M. C. B..........Packerton, Pa.
Lehigh & Hudson River Ry. 4-8½ g. 63 m. 8 lo. 350 c.
Grinnell Burt, Gen. Man........Warwick, N. Y.
N. L. Furman, Supt..........Warwick, N. Y.
John Sayre, Pur. Agt..........Warwick, N. Y.
S. Mills, M. M..............Warwick, N. Y.
Lehigh & Lackawanna and Lehigh & Susquehanna R. Rs. (See Phil. & Read.: N. J. Cen. Div.)
Levis & Kennebec R. R. (See Quebec Cen.)
Litchfield, Carrollton & Western R. R. 4-8½ g. 22 m.
H. S. Carroll, Prest. & G. Man..Carrollton, Ill.
Ligonier Valley R. R. 4-9 g. 11 m. 2 lo. 22 cars.
Thos. A. Mellon, Gen. Manager.. Pittsburg, Pa.
Geo. Senft, Supt. & P. Agt..........Latrobe, Pa.
Little Miami R. R. (See Penna. Co.'s Rds.; (8) Div.)
Little Rock, Miss. River & Texas Ry.
4-8½ g. 170 m. 12 lo. 209 cars.
H. Wood, Gen. Man..........Little Rock, Ark.
F. A. Lister, Gen. Supt........Little Rock, Ark.
F. Hufsmith, M. M. & C. B..........Argenta, Ark.
Little Rock & Fort Smith. 4-8½ g. 170 m. 13 lo. 360 c.
Hv. Wood, Gen. Man..........Little Rock, Ark.
F. A. Lister, Supt..........Little Rock, Ark.
F. Hufsmith, M. M. & M. C. B.....Argenta, Ark.
Little Saw Mill Run R. R. 3 & 4-8½ g. 8 m. 4 lo. 327 c.
T. Hartley, Gen. Man..........Banksville, Pa.
Long Island R. R. 4-8½ g. 352 m. 92 lo. 953 cars.
I. D. Barton, Gen. Supt. Long Island City, N. Y.
Benj. Norton, Pur. Agt. Long Island City, N. Y.
C. A. Thompson, M. M. Long Island City, N. Y.
Longview & Sabine Valley R. R. (See Gal. Sab. & St. L.)
Louisiana W'n R. R. (See Cen. Pac.; G., H. & S. A. Div.)
Louisville, Cin. & Lexington R. R. (See Louis. & N.)
Louis., Evans. & St. L. Ry. 4-8½ g. 254 m. 24 lo. 1,032 c.
Geo. F. Evans, Rec..........Louisville, Ky.
R. S. Minor, Gen. Supt..........Louisville, Ky.
F. P. Boatman, M. M..........Evansville, Ind.
Louisville, New Albany & Chicago Ry.
4-8½ g. 479 miles 60 lo. 3,700 cars.
John B. Carson, Gen. Man..........Chicago, Ill.
T. L. Dunn, Gen. Supt..........Chicago, Ill.
H. O. Nourse, Pur. Agt..........Chicago, Ill.
Josiah Bettis, M. M. & C. B...New Albany, Ind.
C. C. F. Bent, Supt. Trans.....Lafayette, Ind.
Louisville, New Orleans & Tex. Ry. 455 m. In progress.
Jas. M. Edwards, Gen. Man...Memphis, Tenn.
E. D. Anderson, M. M..........Memphis, Tenn.
John Bradley, Div. Supt......New Orleans, La.
C. J. Birdsong, Div. Supt.....Memphis, Tenn.
Louisville & Nashville R. R.
5 g. 2,186 m. 380 lo. 12,197 cars.
Reuben Wells, Gen. Man..........Louisville, Ky.
J. T. Harahan, Asst. Gen. M....Louisville, Ky.
Geo. F. Evans, Supt..........Louisville, Ky.
P. P. Huston, Pur. Agt..........Louisville, Ky.
Harvey Middleton, Supt. Mach..Louisville, Ky.
Louisv., Cin. & Lex. Divs.:
J. G. Metcalf, Supt. Trans.....Louisville, Ky.
P. Leeds, M. M..........Louisville, Ky.
J. W. Luttrell, M. M..........Louisville, Ky.
J. G. Clifford, M. M. (2d & C. Div.). Bowling Grn. Ky.
Henderson Div.: J. Geddes, Supt. Henderson, Ky.
W. F. Pike, M. M..........Nashville, Tenn.
Nash. & D. Div.: J. Geddes, Supt. Nashville, Tenn.
Elkton & Guthrie:
J. Geddes, Supt..........Nashville, Tenn.
S. & N. A. Div.: Levi Hedge, Supt. Birmingham, Ala.
C. W. White, M. M..........Birmingham, Ala.
Mob. & M.; N. Div. Pens. & Sel.; Sl. & Mont. R. Rs.:
B. C. Epperson, Supt.......Montgomery, Ala.
J. N. Hall, M. M. (Mont. Shops). Montgomery, Ala.
N. O. Div.: O. M. Dunn, Supt...New Orleans, La.
Wm. Adair, M. M..............Mobile, Ala.
Memp. Div.: W. Colcamp, Supt. Memphis, Tenn.
J. V. Slusser, M. M..........Memphis, Tenn.
St. L. Div.: C. O. Parker, Supt. Montgomery, Ala.
Thos. Walsh, M. M..........Mt. Vernon, Ill.
Pensacola and So. Div. Pens. & Selma and P. & A. Rds.:
E. O. Saltmarsh, Supt..........Pensacola, Fla.
W. D. Robb, M. M..............Pensacola, Fla.
Louisville & Wadley R. R. 5 g. 10 m. 1 lo. 5 c.
J. H. Wilkins, Supt. & Pur. Agt. Louisville, Ga.

M

Macon & Brunswick R. R.
(See E. Tenn., Vir. & Ga.: At. & Ga. Divs.)
Maine Central R. R. 4-8½ g. 525 m. 82 lo. 2,168 c.
Payson Tucker, Gen. Man........Portland, Me.
Amos Pillsbury, M. M..........Waterville, Me.
C. H. Kenison, M. C. B..........Augusta, Me.
Eastern Maine. 3 g. 19 m. 2 lo. 40 c.
L. L. Lincoln, Supt..........Portland, Me.
Manchester & Keene R.R. 4-8½ g. 30 m. (See Concord.)
Manchester & Lawrence R. R. (See Concord.)
Manchester & North Weare R. R. (See Concord.)
Manhattan Ry. 4-8½ g. 32 m. 228 lo. 652 pass. c.
Frank K. Hain, Gen. Man.....New York, N. Y.
W. T. Goundie, Supt. Trans. .New York, N. Y.
T. W. Peeples, M. M..........New York, N. Y.
H. A. Webster, M. C. B........New York, N. Y.
Manhattan, Alma & Burlingame Ry. (See A., T. & S. F.)
Manitoba Southwestern Colonization Ry.
4-8½ g. 52 m. 3 lo. 125 cars.
J. M. Eagan, V. Pres..........Winnipeg, Man.
W. T. Reed, M. M..............Winnipeg, Man.
Marietta & Cincinnati R. R. (See Cin. Wash. & Balt.)
Marietta & North Georgia R. R. 3 g. 70 m. 4 lo. 45 c.
J. B. Glover, Supt..........Marietta, Ga.
W. R. Power, Pur. Agt..........Marietta, Ga.
C. Chester, M. M..............Marietta, Ga.
Marquette, Houghton & Ontonagon R. R.
4-8½ g. 100 m. 42 lo. 2,530 cars.
John Hornby, Gen. Man.......Marquette, Mich.
W. A. Thompson, Ass't Supt. Marquette, Mich.
M. B. McGee, Pur. Agt......Marquette, Mich.
W. A. Mahan, M. M..........Marquette, Mich.
H. D. Lyons, M. C. B..........Marquette, Mich.
Maryland Central R. R. 3 g. 27 m. 4 lo. 56 cars.
S. G. Boyd, Supt..............Baltimore, Md.
Marquette & Western. 4-8½ g. 25 m. 10 l. 500 c.
D. McCool, Gen. Supt.......Marquette, Mich.
W. J. Tench, Pur. Agt.....Marquette, Mich.
J. B. Wilson, Mech. Supt......Marquette, Mich.
Massachusetts Central R. R. 4-8½ g. 48 m. 5 l. 81 c.
E. G. Allen, Supt. & Pur. Agt....Boston, Mass.
E. A. Walker, M. M..........So. Sudbury, Mass.
McComb, Deshler & Toledo R. R.
(See Cin., Ham. & Day.; D. & M. Div.)
Meadville Ry. (See Penna. Co.'s Rds.; (2) Div.)
Memphis & Charleston R. R. (See E. Tenn. Va. & Ga.)
Memphis & Lit. Rock R. R. 5 g. 135 m. 14 lo. 299 c.
R. Fink, G. Man. & P. A......Little Rock, Ark.
H. G. Fleming, Supt..........Memphis, Tenn.
Thos. Rennell, M. M..........Argenta, Ark.
T. Rennell, M. C. B..........Argenta, Ark.
Mexican Ry. 4-8½ g. 293 m. 42 lo. 616 cars.
E. W. Jackson, Gen. Man.......Mexico, Mex.
Mexican Central Ry. 4-8½ g. 1,224 m. 94 lo. 2,609 c.
Theo. Nickerson, Pur. Agt......Boston, Mass.
D. B. Robinson, Gen. Man.......City of Mexico.
D. MacKenzie, Gen. Supt.......City of Mexico.
F. W. Johnstone, Supt. M. P. & M. City of Mexico.
J. H. O'Brien, M. M..........City of Mexico.
G. T. Jarvis, Div. Supt.........City of Mexico.
A. Smith, Div. Supt..............Silao, Mex.
Wm. Davis, Div. Supt..........Jimulco, Mex.
R. E. Comfort, Div. Supt..Paso del Norte, Mex.
R. S. Simpson, M. M..........City of Mexico.
A. Hendee, M. M..............Calera, Mex.
C. F. Stewart, M. M..............Silao, Mex.
W. L. Wallace, M. M..........Jimulco, Mex.
J. G. McCuen, M. M..........Chihuahua, Mex.
Tampico Div: E. A. Whorf, Supt. Tampico, Mex.
San Blas Div.: C. E. Payne, Supt..San Blas, Mex.
Mexican National Ry. 3 g. 766 m. 50 lo. 1,283 c.
Northern General Division:
C. A. Merriam, Gen. Supt.......Laredo, Tex.
F. W. Baldwin, Asst. Gen. Supt..Laredo, Tex.
John Grace, M. M..............Laredo, Tex.
T. Milan, M. M..........Corpus Christi, Tex.
Metamoras, Div.:
W. W. Mayberry, Asst. Supt..Brownsville, Tex.
Galveston Div.:
T. E. Quinn, Asst. Supt.......Galveston, Tex.
Southern General Division:
W. E. Lewis, Supt..............Mexico, Mex.
R. C. Peebles, Asst. Supt.......Mexico, Mex.
J. M. Winslow, M. M..........Mexico, Mex.
Zacatecas Div.:
C. Langrand, Manager.......Zacatecas, Mex.
Michigan Cen. R. R. 4-8½ g. 1,485 m. 357 lo. 11,284 c.
H. B. Ledyard, Pres. & Gen. Man. Detroit, Mich.
E. C. Brown, Gen. Supt..........Detroit, Mich.
Robert Miller, Asst. Gen. Supt...Detroit, Mich.
Allan Bourn, Pur. Agt..........Detroit, Mich.
S. H. Edgerly, Gen. M. M.......Jackson, Mich.
(1) Lines West of Detroit River:
E. C. Brown, Gen. Supt........Detroit, Mich.
East. Div.: D. S. Sutherland, Supt. Detroit, Mich.
Bay City, Saginaw & Mackinaw Divisions.:
W. A. Vaughan, Supt.........Bay City, Mich.
C. E. Smart, M. M..........Bay City, Mich.
Main Line: Gr. Rap.; So. Bend; and So. Hav. Divs.:
C. B. Bush, Supt..........Jackson, Mich.
W'n Divs.: R. H. L'Hommedieu, Supt. Chicago, Ill.
(2) Lines East of Detroit River:
J. B. Morford, Supt..........St. Thomas, Ont.
A. F. Bull, M. M..........St. Thomas, Ont.
Rob't Potts, M. C. B......St. Thomas, Ont.
Michigan & Ohio.
L. A. Latcha, Gen. Man..........Toledo, O.
W. L. Webb, Pur. Agt..........Toledo, O.
D. J. Durrell, M. M..........Marshall, Mich.
Middleburg & Schoharie; and
Schoharie Valley R. Rs. 4-8½ g. 11 m. 2 lo. 6 cars.
P. S. Danforth, Gen. Supt... Middleburg, N. Y.
Midland of Canada. (See Grand Trunk.)
Midland No. Carolina Ry. 5 g. 95 m. 9 lo. 82 cars.
Atlantic & North Carolina Ry. 22 m.
John D. Whitford, Gen. Man..Newbern, N. C.
J. A. Bryan, Supt..........Newbern, N. C.
D. J. Sprague, Pur. Agt.....New York, N. Y.
B. Manly, Supt. of Mach.......Newbern, N. C.
Milford & Woonsocket.
W. W. Jencks, Supt..........Milford, Mass.
Milton & Sutherlin. (Oper. by Rich. & Danville.)
Milwaukee, Lake Shore & Western Ry.
4-8½ g. 370 m. 45 lo. 1,536 cars.
H. G. H. Reed, Gen. Supt.....Milwaukee, Wis.
J. Donahue, Supt..........Milwaukee, Wis.
John Hickey, M. M..........Ledyard, Wis.
Milwaukee & Northern and Wisconsin & Michigan R. Rds. 4-8½ g. 228 m. 24 l. 703 cars.
C. F. Dutton, Gen. Supt.......Milwaukee, Wis.
N. S. Kimball, M. M..........Ft. Howard, Wis.
Mineral Range R. R. 3 g. 13 m. 4 lo. 43 cars.
Chas. E. Holland, Pr. & Supt...Hancock, Mich.
W. H. Carr, Pur. Agt..........Hancock, Mich.
T. J. Shellhorn, M. M. & C. B..Hancock, Mich.
Minneapolis, Lyndale & Minnetonka Ry.
3 g. 25 miles 4 motors 1 lo. 35 cars.
William McCrory, Man.....Minneapolis, Minn.
T. W. Heintzelman, M. M. Minneapolis, Minn.
Minneapolis, S. Ste. Marie & Atlantic Ry.
4-8½ g. 45 m.
W. W. Rich, Supt..........Minneapolis, Minn.
Minneapolis & St. Louis Ry.
4-8½ g. 560 m. 72 lo. 2,060 c.
W. H. Truesdale, V. Pres..Minneapolis, Minn.
T. E. Clarke, Gen. Supt....Minneapolis, Minn.
W. B. Palmer, Pur. Agent Minneapolis, Minn.
G. F. Wilson, M. M. & M. C. B. Minneapolis, Minn.
Missisquoi R. R. 4-8 g. 28 m.
W. C. Smith, Man..........St. Albans, Vt.
Mississippi, Terre aux Bœufs & Lake R. R.
29 miles.
M. R. Spelman, Supt..........New Orleans, La.
Mississippi & Tenn. R. R. 4-8½ g. 101 m. 12 lo. 194 c.
Jas. M. Edwards, Gen. Man....Memphis, Tenn.
J. C. Ramsey, M. M..........Memphis, Tenn.
S. J. Bolton, M. C. B..........Memphis, Tenn.
Missouri, Kansas & Texas Ry. (See Mo. Pac.; (2) Div.)
Missouri Pacific Ry. (Leased and operated lines.)
4-8½ g. 6,029 m. 697 lo. 19,748 cars.
H. M. Hoxie, 3d V. Pres..........St. Louis, Mo.
R. B. Lyle, Pur. Agt..........St. Louis, Mo.
(1), (2) and (3) Divs.:
John Hodge, Supt. Car Dep.......St. Louis, Mo.
Frank Howard, Asst. Supt. C. D...Marshall, Tex.
(4), (5) and (6) Divs.:
O. A. Haynes, Insp. L. C. & M...St. Louis, Mo.
(1) Missouri Pacific Ry. 1,028 m. 155 lo. 4,218 cars.
A. M. Hagar, Supt..........Sedalia, Mo.
E. Taylor, M. M..............Sedalia, Mo.
W'n Div.: A. M. Hagar, Supt.......Sedalia, Mo.
(2) Mo., Kan. & Tex. Ry. 1,308 m. 140 lo. 4,248 cars.
Jos. Herrin, Supt..............Sedalia, Mo.
S. Irvin, Asst. Supt. Car Dep......Sedalia, Mo.
J. B. Vandyne, Supt..........Parsons, Kan.
J. W. Haines, M. M..........Parsons, Kan.
(3) Central Branch Un. Pac. R. R. 388 m. 30 lo. 509 c.
W. W. Fagan, Supt..........Atchison, Kan.
H. V. Faries, M. M..........Atchison, Kan.
J. W. Blackburn, A. Supt. Car D..Atchison, Kan.
(4) St. L., I. Mt. & So'n Ry. 905 m. 138 lo. 4,928 c.
Wm. Kerrigan, Supt..........St. Louis, Mo.
St. Louis Div.: W. H. Harris, M. M..De Soto, Mo.
Ark. Div.: Supt......Little Rock, Ark.
R. M. Richardson, M. M.....Little Rock, Ark.
(5) Int. & G. No.: Supt..Palestine, Tex.
W. S. Morris, M. M..........Palestine, Tex.
(6) Tex. & Pac.: Supt.....Marshall, Tex.
E. N. O. & Tr. Cont. Divs.:
Geo. Dimick, Supt..........Marshall, Tex.
E. A. Haggerty, M. M..........Marshall, Tex.
E. R. Smith, M. M. & M. C. B..N. Orleans, La.
Rio Grande Div.:
L. L. Keller, Supt..........Big Springs, Tex.
J. K. Lape, M. M..........Big Springs, Tex.
Mobile & Ala. Grand Trunk R. R. 5 g. 59 m. 2 lo. 23 c.
Wm. H. Pratt, Trustee..........Mobile, Ala.
Mobile & Girard R. R. 5 g. 84 m. 7 lo. 112 cars.
W. L. Clark, Gen. Supt..........Columbus, Ga.
J. C. Albrecht, M. M..........Columbus, Ga.
A. J. Nix, M. C. B..............Columbus, Ga.
Mobile & Montgomery Ry. (See Louis. & Nash.)
Mobile & Northwestern R. R. 3 g. 31 m. 2 lo. 16 c.
Thomas T. A. Lyon, Pres......Glendale, Miss.
Mobile & Ohio R. R. 5 g. 528 m. 75 lo. 1,353 cars.
T. M. R. Talcott, V.-Pr. & Gen. Man. Mobile, Ala.
J. G. Motley, Gen. Supt..........Mobile, Ala.
F. Jordan, Pur. Agt..............Mobile, Ala.
M. T. Carson, Gen. M. M..........Whistler, Ala.
J. T. Booth, M. C. B..............Whistler, Ala.
So'n Div.:..............Mobile, Ala.
L. J. Morris, M. M..........Macon, Miss.
No'n Div.: E. S. Hosford, Supt...Jackson, Tenn.
H. C. Goode, M. M..........Jackson, Tenn.
Mobile & Spring Hill R. R. 5-2 g. 8 m. 1 lo. 16 cars.
F. Ingate, Manager..............Mobile, Ala.
Moline & Southeastern R. R. 3-6 g. 8 m. 2 lo. 26 c.
R. Battersly, Gen. Man.........Coal Valley, Ill.
Mont Alto R. R. 4-9 g. 21 m. 2 lo. 8 cars.
G. B. Wiestling, Supt. & P. A....Mont Alto, Pa.
Montgomery & Eufaula Ry. (See Cen. of Ga.)
Montgomery Southern Ry. 3 g. 20 m. 1 lo. 15 cars.
S. D. Hubbard, Jr., Gen. Man. Montgomery, Ala.
Montour R. R. 4-8½ g. 12 m. 2 lo. 130 cars.
C. R. Brown, Supt. & Pur. Agt...Imperial, Pa.
Henry Newman, M. C. B.......Imperial, Pa.
Montpelier & Wells Riv. R. R. 4-8½ g. 38 m. 3 lo. 86c.
W. A. Stowell, Supt..........Montpelier, Vt.
Montreal Portland & Boston Ry. (See Passumpsic.)
Montreal & Sorel Ry. 4-8½ g. 47 m. 3 lo. 35 c.
C. N. Armstrong, G. M. & Pur. Agt. Sorel, Que.
J. F. Armstrong, Gen. Supt.......Sorel, Que.
G. W. Pangborn, M. M..........Sorel, Que.
Montrose Ry. 3 g. 28 m. 3 lo. 24 cars.
T. G. Walter, Gen. Supt... Tunkhannock, Pa.
Morgan's Louis. & Tex. R. R. 4-8½ g. 260 m. 46 l. 1,339 c.
J. Kruttschnitt, Supt.........New Orleans, La.
C. Trumpy, Pur. Agt.......New Orleans, La.
J. D. Connell, M. M..........Algiers, La.
Jno. Hildebrand, M. C. B.......Algiers, La.
Mount Washington R. R. 5-3 g. 3 m. 6 lo. 6 cars.
Walter Aiken, Gen. Man......Franklin, N. H.
Muncy Creek Ry. (See Wmspt. & No. Br.)

N

Nantasket Beach R. R. 4-8½ g. 6 m. 5 lo. 25 c.
George L. Keyes, Gen. Supt......Boston, Mass.
Naugatuck R. R. 4-8½ g. 62 m. 17 lo. 547 cars.
Geo. W. Beach, Supt..........Waterbury, Conn.
H. A. Bishop, Pur. Agt.........Bridgeport, Conn.
H'y D. Beach, Supt. R. S....Bridgeport, Conn.
Napanee, Tamworth & Quebec Ry. In progress.
Ed. W. Rathbun, Gen. Man....Deseronto, Ont.
R. C. Carter, Asst. Gen. Man..Deseronto, Ont.
Narragansett Pier R. R. 4-8½ g. 8 m. 2 lo. 11 c.
G. T. Lanphear, Supt. & Pur. Agt. Peacedale, R. I.
Nashua & Rochester R. R. (See Wor. & Nash.)
Nashville, Chattanooga & St. Louis Ry.
5 g. 539 miles 87 lo. 1,979 cars.
J. W. Thomas, G. Man. & P. Agt. Nashville, Tenn.
M. J. C. Wrenne, Supt..........Nashville, Tenn.
James Cullen, M. M. & C. B...Nashville, Tenn.
Nashville & Florence R. R. 5 g. 51 m.
J. Geddes, Supt..............Columbia, Tenn.
Natchez, Jackson & Col. R. R. 3-6 g. 100 m. 7 lo. 92 c.
E. D. Frost, Gen. Supt..........Natchez, Miss.
National Car Company. 4,000 freight cars.
L. Millis, Pres..................Boston, Mass.
F. Stewart Stranahan, Sec. & Tr. St. Albans, Vt.
John B. Fletcher, Supt.........St. Albans, Vt.
Nebraska, Topeka, Iola & Memphis R.R. 4-8½ g. 16 m.
H. M. Clarke, Gen. Man..........Girard, Kan.
C. H. Malin, Gen. Supt..........Girard, Kan.
New Brunswick Ry. 4-8½ g. 419 m. 20 lo. 357 cars.
E. R. Burpee, Gen. Man.....Woodstock, N. B.
Jesse Mathews, M. M..........Gibson, N. B.
T. N. Burpee, M. C. B....McAdam Junc., N. B.
J. J. Seely, Pur. Agt..........Woodstock, N. B.
Thos. Armstrong, M. M.... St. Andrew's, N. B.
G. Houlton, M. C. B........St. Andrew's, N. B.
New Brunswick & Can. Ry. (See New Brun.)
Newburg, Dutchess & Conn. R. R. 4-8½ g. 58 m.
C. L. Kimball, Supt. & P. Agt. Matteawan, N. Y.
New Castle R. R. 3-6 g. 5 m. 2 lo. 76 cars.
Geo. Pearson, Gen. Man.......New Castle, Pa.
New Castle & Beaver Valley R. R. (See Penna. Co.)
New Haven & Derby R. R. 4-8½ g. 13 m. 4 lo. 70 c.
E. S. Quintard, Supt..........New Haven, Conn.
J. M. Whitlock, M. M. & C. B. New Haven, Conn.
New Haven & No'mpton. 4-8½ g. 170 m. 28 lo. 579 c.
S. B. Opdyke, Jr., Supt.......New Haven, Ct.
R. G. Curtis, Pur. Agt..........New Haven, Ct.
Henry Fox, M. M..............New Haven, Ct.
John Sweeny, For. Car. Shps...New Haven, Ct.
New Jersey & New York Ry. 4-8½ g. 37 m. 6 lo. 40 c.
J. D. Hasbrouck, Gen. Man. Jersey City, N. J.
J. S. Drake, Supt. & M. M.......Hillsdale, N. J.
L. B. Van Wagonen, M. C. B.....Hillsdale, N. J.
N. J. Southern Ry. (See Phil. & Read.; N. J. So. Div.)
New London Northern R. R. (See Central Ver.)
New Orleans, B. Rouge, Vicks. & Memphis.
Jas. M. Edwards, Gen. Man..New Orleans, La.
John Bradley, Supt..........New Orleans, La.
New Orleans Pacific Ry. (See Mo. Pac.; (6) Div.)
New Orleans & Carrollton R. R.
4-8½ g. 15 m. 12 lo. 79 cars.
C. V. Halle, Supt..........New Orleans, La.
John Dahmer, M. M..........New Orleans, La.
Jas. Thorn, M. C. B..........New Orleans, La.
New Orleans & Mobile R. R. (See Louis. & Nash.)
N. O. & Northeastern R. R. (See Cin., N. O. & Tex. Pac.)
New Orleans & Selma R. R. 5 g. 21 m. 1 lo. 8 cars.
L. B. Schofield, Supt..............Selma, Ala.
Newport & Wickford R. R. 4-8½ g. 22 m.
Theo. Warren, Supt..........Newport, R. I.
Nevada Central R. R. (See Union Pac.; (7) Div.)
Nevada County N. G. R. R. 3 g. 23 m. 3 lo. 46 cars.
John F. Kidder, Supt.......Grass Valley, Cal.
Jas. McCormick, M. M. & C. B. Grass Valley, Cal.
Nevada & Oregon R. R. 3 g. 30 m. 25 cars.
D. W. Balch, Supt..............Reno, Nev.
N. Y. Central & Hudson River R.R.
4-8½ g. 983 m. 676 lo. 25,161 cars.
J. M. Toucey, Gen. Supt.......New York, N. Y.
Chas. Reed, Pur. Agt.........New York, N. Y.
Wm. Buchanan, Supt. M. P. and R. Stock, New York, N. Y.
N. Y. & Har. Div.: C. M. Bissell, Supt. do.
P. McQ. Gibson, M. M.......New York, N. Y.
Hud. Riv. Div.: C. M. Bissell, Supt. N. York, N. Y.
W. H. Wolfrath, M. C. B....New York, N. Y.
E'n Div.: Zenas C. Priest, Supt. Little Falls, N. Y.
John Ortton, M. M..........West Albany, N. Y.
L. Packard, M. C. B......West Albany, N. Y.
W'n Div.: Geo. H. Burrows, Supt...Buffalo, N. Y.
S. L. White, M. M..........Syracuse, N. Y.
Amos Gould, M. M..........E. Buffalo, N. Y.
E. Chamberlain, M. C. B... E. Buffalo, N. Y.
Peter Smith, M. C. B..... E. Rochester, N. Y.
Ed. Donaby, M. C. B....Niagara Falls, N. Y.
N. Y. Chic. & St. L. Ry. 4-8½ g. 524 m. 108 lo. 7,245 c.
Lewis Williams, Gen. Man..........Cleveland, O.
M. M. Rogers, Pur. Agt..........Cleveland, O.
Jno. Mackenzie, Supt. M. P......Cleveland, O.
Eas'tn Div.: G. H. Kimball, Supt...Cleveland, O.
E. A. Miller, M. M..............Conneaut, O.
West'n Div.: A. H. Evans, Supt.......Chicago, Ill.
W. H. Lewis, M. M..............Bellevue, O.
New York City & Northern. 4-8½ g. 58 m. 17 lo. 368 c.
Frank S. Gannon, Gen. Supt. High Bridge, N. Y.
Thos. Millen, M. M..........High Bridge, N. Y.
New York, Lackawanna & W'n Ry. (See Del. L. & W.)
New York, Lake Erie & Western R. R.
S. M. Felton, Jr., V. Pr.......New York, N. Y.
(1) N.Y., L.E.&W. Div.: 4-8½ g. 1,073 m. 576 lo. 30,553 c.
B. Thomas, Gen. Supt........Jersey City, N. J.
W. G. Tuller, Pur. Agt........New York, N. Y.
F. M. Wilder, Supt. M. P. & M...Susqueh'a, Pa.
E'n Div.: E. O. Hill, Supt......Jersey City, N. J.
J. H. Vreeland, M. M..........Jersey City, N. J.
J. N. Mileham, M. C. B.....Jersey City, N. J.
Del. Div.: E. Van Etten, Supt. Port Jervis, N. Y.
J. Van Vechten, M. M. & C. B. Pt. Jervis, N. Y.
Susq. Div.: R. B. Cable, Act. Supt..Elmira, N. Y.
V. Blackburn, M. M.......Susquehanna, Pa.
D. B. Goodell, M. C. B..............Elmira, N. Y.
Buf. & R. Divs.: W. J. Murphy, Supt.; and
Wm. Litz, M. M..............Buffalo, N. Y.
M. Wilder, M. C. B..............Buffalo, N. Y.
B. & S.-W. Div.: C. A. Brunn, Supt. do.
W'n Div.: W. B. Coffin, Supt..Hornellsville, N. Y.
J. Hawthorne, M. M......Hornellsville, N. Y.
N. Y. & Greenwood L. Ry. 4-8½ g. 44 m. 8 lo. 53 c.
Stephen Smith, Supt..........Jersey City, N. J.
F. A. Stinard, M. M..............Pompton, N. J.
(2) N. Y., Pa. & O. Div.: 4-8½ g. 565 m. 221 lo. 7,794 c.
Chas. Paine, Gen. Supt........Cleveland, Ohio.
J. H. Holway, Pur. Agt.......Cleveland, Ohio.
Wm. Fuller, Supt. M. P..........Cleveland, O.
S. V. Smith, Asst. Gen. M. C. B. ...Kent, Ohio.
E'n Div.: A. L. Dunbar, Supt.......Meadville, Pa.
J. A. Cooper, M. M..............Meadville, Pa.
D. S. Dockstader, M. C. Rep...Meadville, Pa.
W'n Div.: T. A. Phillips, Supt..........Galion, O.
Wm Hill, M. M..............Galion, O.
Geo. Wilson, For. Car Rep.....Galion, Ohio.
Maho'g Div.: N. F. Wood, Supt.......Cleveland, O.
N. Wright, M. M..............Cleveland, O.
C. N. Thorp, M. C. Rep.......Cleveland, O.
New York, New Haven & Hartford R. R.
4-8½ g. 203 m. 123 lo. 2,768 cars.
E. M. Reed, V. P. & Gen. Supt. New Haven, Ct.
R. N. Dowd, Pur. Agt..........New Haven, Ct.
John Henney, Jr., Supt. M. P...New Haven, Ct.
N. Y. & N. H. Div.: W. H. Stevenson, Supt...N. Y.
Shore Line and Air Line Divs.:
O. M. Shepard, Supt..........N. Haven, Ct.
Jas. Denver, M. C. B..........New Haven, Ct.
Hart. Div.: C. S. Davidson, Supt....Hartford, Ct.
O. C. Lackey, M. M..............Hartford, Ct.
Jno. Whitmore, For. C. Dept...Hartford, Ct.
N. Y., Ontario & Western Ry. (See N. Y., W. Sh. & Buf.)
N. Y., Pittsb'h & Chicago. 4-8½ g. 20 m. 2 lo. 32 c.
Geo. W. Dixon, Supt..........New Galilee, Pa.
H. T. Hanna, Pur. Agt..........Pittsburgh, Pa.
N. Y., Pennsylvania & Ohio R. R. (See N. Y., L. E. & W.)
New York, Philadelphia & Norfolk R. R.
4-8½ g. 10 m. 1 lo. 4 cars.
H. W. Dunne, Supt..........Cape Charles, Va.
New York, Providence & Boston R. R.
4-8½ g. 83 m. 29 lo. 430 cars.
J. B. Gardner, Supt..............Providence, R. I.
Giles F. Ward, Pur. Agt......Stonington, Conn.
Geo. H. Griggs M. M. & C. B..Providence, R. I.
N. Y., Susqueh'na & W'n. 4-9 g. 147 m. 33 lo. 1,469 c.
F. A. Potts, Gen. Man..........New York, N. Y.
C. D. McKelvey, Supt..........Jersey City, N. J.
C. T. Demarest, Pur. Agt.....New York, N. Y.
W. C. Ennis, M. M. & C. B...Wortendyke, N. J.
New York, Texas & Mexican Ry.
4-8½ g. 92 m. 6 lo. 95 cars.
Allen McCoy, Gen. Man..........Victoria, Tex.
J. G. Conlon, M. M..............Victoria, Tex.
New York, West Shore & Buffalo.
4-8½ g. 850 m. 98 lo. 2,907 c.
J. D. Layng, Gen. Man..........New York, N. Y.
C. W. Bradley, Gen. Supt.....Weehawken, N. J.
P. S. Bemis, Pur. Agt..........New York, N. Y.
R. H. Soule, Supt. M. P.......Frankfort, N. Y.
T. W. Fredericks, Asst. S. M. P. Frankfort, N. Y.
H. R. Div.: J. P. Bradfield, Act. Supt., Weehawken, N. J.
Harry Linn, M. M..........New Durham, N. J.
Moh'k Div.: H. W. Gardiner, Supt. Syracuse, N. Y.
Buff. Div.: D. B. M. Coy, Supt.....Newark, N. Y.
New York, Ontario & Western.
J. E. Childs, Gen. Supt........New York, N. Y.
N. Y. Woodhaven & Rockaway R. R. (See Long Is.)
N. Y. & Greenwood Lake Ry. (See N. Y., L. E. & W.)
N. Y. & Manhattan Beach Ry. (See Long Island.)
New York & Long Branch R. R. (See Phil. & Read.)
New York & New England R. R.
4-8½ g. 473 m. 145 lo. 3,959 cars.
W. H. Turner, Gen. Supt..........Boston, Mass.
W. W. McKim, Pur. Agt..........Boston, Mass.
J. B. Henney, Supt. M. P........Boston, Mass.
Geo. E. Boyden, M. M..........Norwood, Mass.
Elias E. Pratt, M. C. B..........Norwood, Mass.
East Div: E. G. Allen, Supt........Boston, Mass.
Nor. Div.: P. St. M. Andrews, Supt...Norwich, Ct.
M. M..............Norwich, Ct.
Prov. Div.: L. W. Palmer, Supt..Providence, R. I.
Hfd. Div.: E. Holbrook, Supt.......Hartford, Ct.
E. M. Humstone, M. M..........Hartford, Ct.
West'n Div.: C. H. Platt, Supt.....Fishkill, N. Y.
Woons'kt Div.:
E. N. Tucker, Supt..........Needham, Mass.
New York & Sea Beach R. R. 4-8½ g. 6 m. 6 lo. 41 c.
W. O. McDowell, Gen. Man....New York, N. Y.
C. W. Douglass, Gen. Supt...Bay Ridge, N. Y.
Newark, Somerset & Straitsville R. R. (See B. & O.)
Newburg, Dutchess & Conn. R. R. 4-8½ g. 59 miles.
C. L. Kimball, Gen. Supt.....Matteawan, N. Y.
W. G. Van Buskirk, M. M. & C. B., Dutchess Junction, N. Y.
Newfoundland Ry. 3-6 g. 45 m. 7 lo. 41 c.
C. X. Hobbs, Gen. Man..........St. John's, N'f'd.
Norfolk Southern R. R. 4-8½ g. 74 m. 7 lo. 182 c.
M. K. King, Gen. Man. & Pur. Agt. Norfolk, Va.
J. S. Whitworth, M. M. & C. B.....Norfolk, Va.
Norfolk & Ocean View R. R. & Hotel Co.
3 g. 8 m. 2 lo. 9 cars.
W. H. Taylor, Pres..................Norfolk, Va.
Norfolk & Va. Beach R. R. 3 g. 18 m.
J. M. Dickey, Gen. Man..........Norfolk, Va.
Norfolk & Western R. R. (See Shenandoah Val.)
North-Eastern R. R. of Ga. 5 g. 72 m. 2 lo. 20 cars.
H. R. Bernard, Supt..................Athens, Ga.
North-Eastern R. R. (S. C.) (See Wil. & Wel.)
North Pacific Coast R. R. 3 g. 84 m. 12 lo. 320 cars.
Gen. Supt..........San Rafael, Cal.
W. F. Russell, Pur. Agt....San Francisco, Cal.
E. L. Reese, M. M..............Saucelito, Cal.

North Shore Ry. 4-8½ g. 209 m. 21 lo. 564 c.
W. Wainwright, Gen. Man .....Montreal, Can.
A. Davis, Supt. & Pur. Agt ......Quebec, Can.
Northern (N. H.), and Concord & Claremont Rys. (See Boston & Lowell.)
Northern (N. J.) R. R. (See N. Y., L. E. & W'n.)
Northern Central Ry. (See Penna. R. R. (6) Div.)
North'n Pacific R. R. 4-8½ g. 2,207 m. 391 lo. 9,897 c.
T. F. Oakes, Gen. Man..... .....St. Paul, Minn.
John H. Ames, Gen. Pur. Agt.. St. Paul, Minn.
Geo. W. Cushing, Supt. M. P., M. & R. S. do.
J. C. Barber, M. C. B ....Brainerd, Minn.
(1) E'n Div.: J. T. Odell, A. Gen. Man. St. Paul, Minn.
H. J. Small, A. S. Mach. .....Brainerd, Minn.
1st Gr. Div.: M. C. Kimberly, Supt. Brainerd, Minn.
M. C. B......Brainerd, Minn.
2d Gr. Div.: J. M. Graham, Supt. Jamestown, Dak.
C. C. Quinn, M. M. ....Fargo, Dak.
A. Bardsley, M. M. ....Mandan, Dak.
F. Greene, A. Supt ....Mandan, Dak.
3d Gr. Div.: S. R. Ainslie, Supt.. Glendive, Mont.
S. L. Bean, M. M. ....Glendive, Mont.
J. C. Munro, M. M.... .....Livingston, Mont.
(2) W'n Div.: J. M. Buckley, Asst. Gen. Man. New Tacoma, W. T.
H. D. Sanborn, P. Agt..... ...Portland, Ore.
W. T. Small, A. S. Mach.......Portland, Ore.
4th Gr. Div.: F. W. Gilbert, Supt. Missoula, Mont.
F. P. Weymouth, Supt .... Sprague, W. T.
Wm. Garlock, M. M. ....Missoula, Mont.
J. Evans, M. M. ....Sprague, W. T.
5th Gr. Div.: Otis Sprague, Supt...Tacoma, W. T.
H. H. Warner, M. M. ....Tacoma, W. T.
Northern & North-W'n Rys. 4-8½ g. 378m. 50 lo. 1,195 c.
James Webster, Supt..... ....Toronto, Can.
W. C. Schreber, Pur. Agt. ......Allandale, Can.
P. Clarke, M. M.... ....Toronto, Can.
Northern & Western Ry. 4-8½ g. 50 m.
J. B. Snowball, Man......... ..Chatham, N. B.
Nova Scotia Ry. 4-8½ g. 79 m. 9 lo. 268 c.
C. A. Scott, Gen. Man.. ...New Glasgow, N. S.
M. F. Punch, M. M. ....New Glasgow, N. S.

O

Ogdensburg & Lake Champlain R. R.
4-8½ g. 130 m. 33 lo. 1,694 cars.
A. A. Gaddis, Gen. Man......Ogdensburg, N. Y.
E. B. Burnham, Pur. Agt...Ogdensburg, N. Y.
Abr. Klohs, M. M. ....Malone, N. Y.
H. S. Leach, Master Builder. Ogdensburg, N. Y.
Ohio Central R. R. 4-8½ g. 325 m. 46 lo. 4,760 cars.
John E. Martin, Rec...... Toledo, O.
T. M. Peelar, Supt .... Bucyrus, O.
F. W. Stewart, Pur. Agt .. ..Toledo, O.
J. B. Morgan, M. M. & C. B... ....Bucyrus, O.
Ohio River R. R. 4-9 g. 9 lo. 350 cars.
C. L. Williams, Asst. Supt. Parkersburg, W. Va.
S. Litchworth, M. M. .....Parkersburg, W. Va.
Ohio Southern R. R.:
W. H. Van Tassel, Supt....... Springfield, O.
John King, M. M. ....Springfield, O.
Ohio & Mississippi Ry. 4-9 g. 616 m. 113 lo. 2,501 cars.
W. W. Peabody, Pres. & Gen. Man. Cincinnati, O.
G. E. Atwood, Pur. Agt.........Cincinnati, O.
J. H. Setchel, Gen. M. M.... .....Cincinnati, O.
Cin. Div.: C. B. Cole, Supt..... ....Seymour, Ind.
J. P. Coulter, Gen. M. C. B..... ..Aurora, Ind.
E. E. Jenks, A. Gen. For......Seymour, Ind.
W. L. Hoffecker, Ass't M. M. Vincennes, Ind.
A. N. Bradley, M. C. P.........Cochran, Ind.
St. L. & Sp. Div.: C. M. Stanton, Supt. St. Louis, Mo.
J. W. Stokes, M. M. (Spring. Div.).. Pana, Ill.
Louisv. Div.: C. B. Cole, Supt . .Louisville, Ky.
Oil City & Chicago R. R. (See Buff., N. Y. & Phil.)
Old Colony R. R. 4-8½ g. 470 m. 124 lo. 3,527 cars.
J. R. Kendrick, Gen. Man.......Boston, Mass.
R. W. Husted, Pur. Agt..........Boston, Mass.
Jas. N. Lauder, Supt. R. S...... Boston, Mass.
Sam. Stevens, S. Br. & Bld'gs....Boston, Mass.
Main Li. Div.: J. H. French, Supt...Boston, Mass.
F. M. Twombly, M. M. ....Boston, Mass.
Cape Cod Div.: C. H. Nye, Supt.. Hyannis, Mass.
F. M. Twombly, M. M. ....Boston, Mass.
No. Div.: S. A. Webber, Supt....Fitchburg, Mass.
A. W. Twombly, M. M.... ....Taunton, Mass.
Olympia & Chehalis Val. R. R. 3 g. 15 m.
Otis Sprague, Supt ....Olympia, W. T.
Oregon Ry. & Navigation Co.
3 & 4-8½ g. 807 m. 72 lo. 1,611 cars.
C. H. Prescott, V. P. & Gen. Man. Portland, Ore.
F. T. Dodge, Supt. (Riv. Div.)....Portland, Ore.
H. S. Rowe, Supt. (Ry Div.)......Portland, Ore.
J. M. Drake, Pur. Agt........... Portland, Ore.
Goodall, Perkins & Co., Supt. (Ocean Div.) San Francisco, Cal.
C. C. Hobart, Gen. M. M.......The Dalles, Ore.
P. Carlsen, Foreman ....The Dalles, Ore.
Oregon & California R. R. 4-8½ g. 449 m. 43 lo. 626 c.
R. Koehler, Man................Portland, Ore.
J. Brandt, Gen. Supt............Portland, Ore.
W. T. Bodley, Pur. Agt..........Portland, Ore.
A. Brandt, M. M.. ....Portland, Ore.
Ottumwa & Kirkville Ry. 4-8½ g. 13 m.
J. A. Kebler, Supt ....Ottumwa, Ia.
Owensboro & Nashville R. R. 5 g. 44 m. 3 lo. 70 c.
W. M. Newbold, Supt..........Owensboro, Ky.
J. T. Edwards, M. M. & C. B. Owensboro, Ky.
Oxford & Henderson R. R. 4-8½ g. 13 m. 2 lo. 11 c.
James A. White, Gen. Supt...Henderson, N. C.
James E. Lawrence, M. M. ...Henderson, N. C.

P

Pacific Coast Ry. 3 g. 64 m.
J. M. Fillmore, Manager. San Luis Obispo, Cal.
John Walch, M. M. & C. B. do.
Painesville & Youngstown Ry. 3 g. 65 m. 7 lo. 319 c.
R. K. Paige, Rec. & Man.........Painesville, O.
J. A. Newcome, Supt. R. S..... ..Painesville, O.
Panama R. R. 5 g. 48 m. 14 lo. 2,200 cars.
G. A. Burt, Gen. Supt..... Aspinwall, U. S. Col.
E. Z. Penfield, Pur. Agt.......New York, N. Y.
Jos. Beaumont, M. M. .....Aspinwall, U. S. Col.
Passumpsic R. R. 4-8½ g. 147 m. 28 lo. 1,101 cars.
E. Raymond, Pres. & Pur. Agt.. Boston, Mass.
H. E. Folsom, Supt............Lyndonville, Vt.
L. L. Brigham, M. M. .... Lyndonville, Vt.
L. F. Woodard, M. C. B ......Lyndonville, Vt.
Paw Paw and Toledo & South Haven R. Rds.
3 g. 20 m. 3 lo. 16 cars.
John Ihling, Supt...............Lawton, Mich.
Peach Bottom R. R. 3 g. 55 m. 6 lo. 52 cars.
B. B. Newton, Supt. & Pur. Agt...Oxford, Pa.
E. H. Williams, M. C. B.............York, Pa.
W. P. Kirk, M. M. ....Oxford, Pa.
Pemigewasset Valley R. R. 4-8½ g. 21 m. 2 lo. 127c.
J. Thomas Vose, Pres...........Boston, Mass.
Pennsylvania Co.'s (5) Roads
4-9 g. 3,222 m. 920 lo. 32,809 cars.
Gen. Divs. (1), (2), (3), (4) and (5).
Wm. A. Baldwin, Gen. Man.....Pittsburg, Pa.
John Thomas, Gen. Supt...... Pittsburg, Pa.
Wm. Mullins, Gen. Pur. Agt......Pittsburg, Pa.
Joseph Wood, Supt. M. P..... .Fort Wayne, Ind.
(1) Pittsburgh, Ft. Wayne & Chicago Ry.
4-9 g. 468 m. 288 lo. 8,023 cars.
E'n Div.: A. B. Starr, Supt.......Allegheny, Pa.
Geo. J. Parkin, M. M. ....Allegheny, Pa.
D. M. Peppard, M. M. .... Crestline, O.
W'n Div.: C. D. Law, Supt.....Ft. Wayne, Ind.
F. D. Casanave, M. M. ....Ft. Wayne, Ind.
A. H. Somers, Gen. For. Shops...Chicago, Ill.
(2) Ashtabula & Pittsburgh, and
(3) Erie & Pittsburg R. Rds. 221 m. 29 lo. 1,362 c.
John M. Kimball, Supt.. Lawrence Junc., Pa.
J. A. Wood, Gen. For. Shops........Erie, Pa.
(4) Cleveland & Pittsb'g R. R. 225 m. 97 lo. 3,534 c.
R. F. Smith, Asst. Man.... .....Cleveland, O.
Philip Bruner, Supt ....Wellsville, O.
W. F. Beardsley, Mast. of Mach. Wellsville, O.
(5) No-W'n Ohio Ry.: J. S. Morris, Supt...Toledo, O.
Pennsylvania R. R. Co.'s Roads. (7 Gen. Divs.)
4-9 g. 3,158 m. 1,459 loco. 66,816 cars.
Chas. E. Pugh, Gen. Man......Philadelphia, Pa.
Enoch Lewis, Pur. Agt.......Philadelphia, Pa.
John Reilly, Supt. Trans......Philadelphia, Pa.
Theo. N. Ely, Gen. S. M. P.........Altoona, Pa.
Pennsylvania R. R. Divs.
4-9 g. 1,213 m. 705 lo. 46,819 cars.
S. M. Prevost, Gen. Supt ... .Altoona, Pa.
Frank L. Sheppard, Supt. M. P.. Altoona, Pa.
G. W. Strattan, M. M.. ....Altoona, Pa.
Jno. P. Levan, Gen. Fore.........Altoona, Pa.
Phila. Div.: Tho. Gucker, Supt. Philadelphia, Pa.
H. D. Garrett, M. M....W. Philadelphia, Pa.
I. W. Van Houten, Gen. For....W. Phila., Pa.
Schuylkill Div.:
Jas. Reed, Supt...... ......Reading, Pa.
Mid. Div.: O. E. McClellan, Supt. Harrisburg, Pa.
E. L. Caum, M. M. ....Harrisburg, Pa.
Samuel W. Myers, Gen. For. Harrisburg, Pa.
Altoona Div.: J. B. Hutchinson, Supt. Altoona, Pa.
Pitts. Div.: Robert Pitcairn, Supt.. Pittsburgh, Pa.
D. O. Shaver, M. M. ....Pittsburgh, Pa.
J. G. Stewart, Gen. For.......Pittsburgh, Pa.
W. Pa. Div.: A. P. Kirtland, Supt. Blairsville, Pa.
Wm. B. Norris, M. M. ....Blairsville, Pa.
M. H. Fails, Gen. For ....Blairsville, Pa.
Fred. Div.: Wilson Brown, Supt ....York, Pa.
Tyrone Div.: S. S. Blair, Supt........Tyrone, Pa.
Lew. Div.: Wm. M. Phillips, Supt. Lewistown, Pa.
Bed. Div.: R. L. Holliday, Supt......Bedford, Pa.
Monong. Div.: David M. Watt, Supt. Pittsburgh, Pa.
Wm. Lininger, M. M. ....Ormsby, Pa.
(2) United R. Rs. of N. J. Divs. 471 m. 330 lo. 4,041 c.
F. Wolcott Jackson, Gen. St.. Jersey City, N. J.
H. S. Hayward, Supt. M. P... Jersey City, N. J.
David H. Baker, Gen. For... Jersey City, N. J.
N. Y. Div.: Robt. E. Pettit, Supt. Jersey City, N. J.
L. A. Bosdevex, M. M. ..Jersey City, N. J.
E. F. Bosdevex, Gen. For.. Jersey City, N. J.
Belv. Div.: J. A. Anderson, Supt. Lambertv., N. J.
R. McDowell, M. M. ......Lambertville, N. J.
Amboy Div.: W. N. Bannard, Supt. Camden, N. J.
Thos. Kerr, M. M. ....So. Amboy, N. J.
P. S. Bogart, Gen. For......So. Amboy, N. J.
(2½) Camden & At. Rd.: 75 m. 18 l. 261 c.
Joseph Crawford, Supt................and
Rufus Hill, M. M.. ....Camden, N. J.
Samuel Wills, M. C. B...... ..Camden, N. J.
(3) West Jersey R. R. 4-9 g. 188 m. 27 lo. 294 cars.
Joseph Crawford, Gen. Supt.....Camden, N. J.
W. McAlister, M. M.... ....Camden, N. J.
C. C. Williams, Gen. For.......Camden, N. J.
(4) Phila., Wilm. & Balt. R.R. 409 m. 128 lo. 1,882 c.
H. F. Kenney, Gen. Supt. ....Philadelphia, Pa.
J. M. Wallis, S. M. P. ....Philadelphia, Pa.
H. D. Gordon, M. M. ....Wilmington, Del.
W. H. Lungren, M. C. B.... ..Wilmington, Del.
Cen. Div.: L. K. Lodge, Supt........ Media, Pa.
Del. Div.: I. N. Mills, Supt..........Clayton, Del.
Mo. Div.: H. H. Carter, Supt.. Wilmington, Del.
(5) Phila. & Erie R. R. Divs.: 437 m. 110 lo. 3,089 c.
R. Neilson, Gen. Supt.... ...Williamsport, Pa.
A. O. Dayton, Supt. Mo. Po.. Williamsport, Pa.
E'n. Div.: E. B. Westfall, Supt. Williamsport, Pa.
Sun. H. & W. Div.: A. Walter, Supt.; and
H. K. Stout, M. M.... ... .Sunbury, Pa.
Mid. Div.: Tho. A. Roberts, Supt.....Renovo, Pa.
Wm. L. Holman, M. M. ....Renovo, Pa.
West'n Div.: J. W. Reynolds, Supt.....Erie, Pa.
J. Gaskill, M. M. ....Erie, Pa.
(6) Northern Central Ry. 4-9 g. 346 m. 152 lo. 6,610 c.
Robert Neilson, Gen. Supt...Williamsport, Pa.
A. O. Dayton, Supt. M. P....Williamsport, Pa.
A. W. Sumner, Pur. Agt... ....Baltimore, Md.
J. M. Coale, M. M. ....Baltimore, Md.
G. W. Demarest, Gen. For......Baltimore, Md.
Susq. Div.: E. B. Westfall, Supt. Williamsport, Pa.
Sham. Div.: A. Walter, Supt..... ..Sunbury, Pa.
Elm. & Can. Divs.: S. Meade, Supt.. Elmira, N. Y.
Jas. Strode, M. M. ... .Elmira, N. Y.
J. C. Dyott, Gen. For ....Elmira, N. Y.
Sodus Bay Div.: S. Mead, Supt. Sodus Point, N. Y.
Baltimore Div.: H. W. Kapp, Supt. Baltimore, Md.
(7) Balt. & Pot. & Alex. & Fred. 125 m. 30 lo. 360 c.
H. F. Kenny, Gen. Supt......Philadelphia, Pa.
A. W. Sumner, Pur. Agt... .... Baltimore, Md.
J. M. Wallis, Supt. Mo. Po....Philadelphia, Pa.
H. D. Gordon, M. M. ....Wilmington, Del.
J. Lescallett, For. Mach. Shop. Washington, D.C.
R. F. Downs, For. Car Shop.. Washington, D.C.
Penn. Coal Co.'s R. R. 4-3 g. 67 m. 23 eng. 3,271 c.
J. B. Smith, Gen. Supt ..... .Dunmore, Pa.
And. Crane, M. M. ....Dunmore, Pa.
Geo. W. Simpson, M. C. B........Dunmore, Pa.
Pennsylvania, Slatington & New England R. R.
In progress. 4-8½ g. 18 m. 1 lo. 20 cars.
C. H. Stanton, Supt........... New York, N. Y.
Pennsylvania & Erie R. R.—Early Branch.
C. R. Early, Gen. Supt.......... Ridgeway, Pa.
Pensacola & Atlantic R. R. 5 g. 161 m. 9 lo. 67 cars.
E. O. Saltmarsh, Gen. Supt.....Pensacola, Fla.
W. D. Robb, M. M. .... .Pensacola, Fla.
Pensacola & Perdido R. R. 5 g. 10 m. 5 lo. 92 cars.
B. F. Simmons, Pr. & Supt.... Pensacola, Fla.
H. W. Simmons, Pur. Agt......Pensacola, Fla.
J. C. Schutte, M. M. ....Pensacola, Fla.
People's Ry. 4-8½ g. 15 m. 2 lo. 14 cars.
W. D. Pollard, Supt ....Pottsville, Pa.
Peoria, Decatur & Evansville Ry.
4-8½ g. 254 m. 30 lo. 1,660 cars.
G. L. Bradbury, Gen. Man.... .... Peoria, Ill.
P. Reilly, M. M. ....Mattoon, Ill.
Peoria & Farmington R. R. (See Cen. Ia.)
Peoria & Pekin Union Ry. 4-8½ g. 20 m. 12 lo. 106 c.
Thos. B. Burnett, Gen. Supt. & P. A. Peoria, Ill.
O. W. Bell, Supt ....Peoria, Ill.
R. F. Hurd, M. M. & C. B.. ....Peoria, Ill.
Perkiomen R. R. 4-8½ gauge 39 miles.
D. B. Clack, Supt......Perkiomen Junction, Pa.
H. Boyd, Pur. Agt..............Norristown, Pa.
Petersburg R. R. 4-8½ g. 64 m. 10 lo. 133 cars.
R. M. Sully, Supt...............Petersburg, Va.
Geo. F. Jones, Pur. Agt.... ...Petersburg, Va.
J. R. Woodard, M. M. ....Petersburg, Va.
Phila., Wilmington & Balt. R. R. (See Penna. R. R.)
Peterborough & Hillsborough. (See Northern, N. H.)
Philadelphia, Newtown & N. Y. R. R. 4-8½ g. 23 m.
W. M. Geary, Supt............Philadelphia, Pa.
Phila. & Atlantic City R. R. 4-8½ g. 54 m.
John E. Wootten, Gen. Man. Philadelphia, Pa.
W. Bertolet, Supt.......... ...Philadelphia, Pa.
W. S. Wilson, Pur. Agt.......Philadelphia, Pa.
Philadelphia & Erie R. R. (See Penna. R. R.; (5) Div.)
Philadelphia & Reading R. R.
4-8½ g. 1,588 m. 940 lo. 57,477 cars.
John E. Wootten, Gen. Man.. Philadelphia, Pa.
W. S. Wilson, Pur. Agt......Philadelphia, Pa.
Geo. Eltz, Supt. Trans.. .... Reading, Pa.
L. B. Paxson, Eng. of Mach...... Reading, Pa.
No. Penn. & Bound Brook Div.:
I. A. Sweigard, Supt........Philadelphia, Pa.
Mahanoy & Susquehanna Div.:
J. H. Olhausen, Supt...........Palo Alto, Pa.
D. C. Reinhart, Asst. Supt. ...Catawissa, Pa.
A. A. Hesser, Asst. Supt. Mahanoy Plane, Pa.
Schuylkill & Susquehanna Br.:
H. W. Tracy, Supt ....Pine Grove, Pa.
Reading & Columbia R. R.:
A. M. Wilson, Supt ....Columbia, Pa.
N. J. Central and N. J. Southern Divs.:
W. W. Stearns, Supt .... Elizabeth, N. J.
Lehigh & Susquehanna Div.:
G. W. Twining, Supt ... Mauch Chunk, Pa.
Pittsburgh, Bradford & Buffalo Ry. (See Pitts. & West.)
Pittsburgh, Chartiers & Youghiogheny R. R.
4-8¾ g. 19 m.
Geo. S. Griscom, Gen. Man.....Pittsburgh, Pa.
Pittsburgh, Cincinnati & St. Louis Ry. (5 Gen. Divs.)
4-9 g. 916 m. 239 lo. 7,133 cars.
James McCrea, Manager.........Columbus, O.
Wm. Mullins, Pur. Agt.... ....Pittsburgh, Pa.
Edward B. Wall, Supt. M. P.......Columbus, O.
(1) P., C. & St. L. Div.: E. B. Taylor, Supt. Pittsburgh, Pa.
C. B. Street, M. M. ....Dennison, O.
J. M. Copeland, G. F. Car Shops. Steubenville, O.
(2) C. & M. V. Div.: W. F. Black, Supt.. Zanesville, O.
Leroy Kells, M. M.. ....Lancaster, O.
Wm. Meikle, Gen. For .... Lancaster, O.
Daniel Jewell, Gen. F. Car Shops. Lancaster, O.
(3) Li. Mi. Div.: Ralph Peters, Supt....Cincinnati, O.
Leroy Kells, M. M. ....Cincinnati, O.
Jos. Underwood, G. F. Car Shops. Cincinnati, O.
(4) J. M. & I. R. R.: E. W. McKenna, Supt. Louisville, Ky.
Wm. Swanston, M. M. ...Jeffersonville, Ind.
Edw. Austin, G. F. C. Shops. Jeffersonville, Ind.
(5) Indianapolis & Vincennes R. R.
J. J. Turner, Supt.. ....Indianapolis, Ind.
Pittsburgh, Cleveland & Toledo R. R.
4-8¾ g. 78 m. 18 lo. 525 cars.
C. H. Andrews, Pres...........Youngstown, O.
W. F. Hofecker, M. M.. ....Youngstown, O.
Pittsburgh, Ft. Wayne & Chicago Ry. (See Penna. Co.)
Pittsburgh Southern Ry. (See Balt. & O.
Pitts. & Castle Shannon R. R. 3-4 g. 9 m. 5 lo. 428 c.
Gen. Supt... Pittsburgh, Pa.
Holmes Ward, M. M. ......Castle Shannon, Pa.
Wm. E. Long, M. C. B ...... Pittsburgh, Pa.
Pitts. & Lake Erie R. R. 4-8¾ g. 70 m. 30 lo. 1,528 c.
W. C. Quincy, Gen. Man........Pittsburgh, Pa.
D. H. Hostetter, Pur. Agt..... Pittsburgh, Pa.
R. W. Jones, Mast. Trans......Pittsburgh, Pa.
S. W. Haines, M. M. ....Pittsburgh, Pa.
Pittsburgh, McKeesport & Youghiogheny.
4-8¾ g. 57 m. 19 lo. 278 cars.
W. C. Quincy, Gen. Man...... Pittsburgh, Pa.
R. W. Jones, M. of Trans.....Pittsburgh, Pa.
S. W. Haines, M. M. .... Pittsburgh, Pa.
Pitts. & Western R.R. 3 & 4-8½ g. 274 m. 50 lo. 1,407 c.
Pitts., Bradford & Buff. Ry. 3 g. 93 m. 8 lo. 163 c.
Tho. M. King, Gen. Man.........Allegheny, Pa.
J. T. Johnson, Supt.... ....Allegheny, Pa.
J. Morton Hall, Pur. Agt..........Allegheny, Pa.
W. M. Flahavhan, M. M. ....Allegheny, Pa.
Pontiac, Oxford & Pt. Austin R. R. 100 m.
Geo. W. Debevoise, Pr. & Gen. Man. N. York, N.Y.
Jas. Houston, Gen. Supt...... ..Pontiac, Mich.
Port Huron & No.-Western Ry. 3 g. 218 m. 14 lo. 288 c.
H. McMorran, G. Man. & P. A. Port Huron, Mich.
I. R. Wadsworth, Supt.. ...Port Huron, Mich.
Chas. Diefenbach, M. M.....Port Huron, Mich.
Benj. Hillier, M. C. B ....Port Huron, Mich.
Port Jervis & Monticello R. R. 4-8½ g. 24 m. 3 lo. 13 c.
M. V. Heller, Gen. Man......Port Jervis, N. Y.
Port Royal & Augusta. 5 g. 180 m. 16 lo. 310c.
and Augusta & Knoxville Rys.
J. N. Bass, Supt ....Augusta, Ga.
T. F. Warwick, M. M. & M. C. B. Augusta, Ga.
Portland & Ogdensburg. 4-8½ g. 110 m. 11 lo. 311 c.
J. Hamilton, Gen. Supt. & P. A.. Portland, Me.
M. M. ....Portland, Me.
W. G. Brewer, M. C. B ....Portland, Me.
Portland & Rochester R. R. 4-8½ g. 52 m. 8 lo. 226 c.
J. W. Peters, Supt. & Pur Agt... Portland, Me.
E. H. C. Tompson, For. of Mach .. Portland, Me.
David Dow, For. of Car Repairs .Portland, Me.
Potomac, Fred.'g & Pied. R. R. 3 g. 38 m. 2 lo. 38 c.
Will M. Grafton, Supt.... ..Fredericksburg, Va.
W. J. Sweigard, M. M. ....Fredericksburg, Va.
Pough., Hart. & Bos. R. R. 4-8½ g. 45 m. 4 lo. 65 c.
J. A. Perkins, Supt........Poughkeepsie, N. Y.
John L. Donaldson, M. M. Poughkeepsie, N. Y.
Pratt Coal & Iron Company's R.R. 5 g. 20 m. 4 lo. 184 c.
W. L. Gude, Gen. Man........Pratt Mines, Ala.
Prescott & Thirty-Fifth Parallel R. R.
4-8½ g. 77 miles in progress.
Samuel A. Henszey, Gen. Man.. Prescott, Ariz.
Prince Edward Island Ry. 3-6 g. 220 m. 21 lo. 350 c.
Jas. Coleman, Supt. & Pur. Agt.;
Jos. Unsworth, M. Supt. & Storekeeper; and
D. M. Fraser, M. C. B.. .Charlottetown, P. E. I.
Profile & Franconia Notch R. R. 3 g. 15 m. 3 lo. 18 c.
Emmons Raymond, Pur. Agt.. Boston, Mass.
C. H. Greenleaf, Supt......Profile House, N. H.
Prospect Park & Coney Island R. R.
4-8½ g. 15 m. 5 lo. 123 cars.
And. R. Culver, Pres.........Brooklyn, N. Y.
R. Schermerhorn, Supt ......Brooklyn, N. Y.
Martin Painter, M. M. ....Brooklyn, N. Y.
Prov., Warren & Bristol R. R. 4-8½ g. 19 m. 6 lo. 79 c.
Waterman Stone, Supt.. ....Providence, R. I.
Rufus Smith, M. M. & C. B......Bristol, R. I.
Prov. & Springfield R. R. 4-8½ g. 23 m. 4 lo. 92 c.
Wm. Tinkham, Gen. Man.....Providence, R. I.
G. T. Richardson, M. M. ......Providence, R. I.
Prov. & Worcester. 4-8½ g. 50 m. 37 lo. 1,253 c.
W. E. Chamberlain, Supt ......Providence, R. I.
A. Griggs, Supt. L. & C. D....Providence, R. I.
Pullman's Palace Car Co. 1,100 passenger cars.
Geo. M. Pullman, Pres...... ....Chicago, Ill.
H. Porter, V. Pres.......New York, N. Y.
Geo. F. Brown, Gen. Supt..... ...Chicago, Ill.
Wm. A. Angell, Pur. Agt........Chicago, Ill.
S. W. Bretzfield, Asst. Pur. Agt. New York, N.Y.
A. Rapp, Man. (Chicago Works)...Chicago, Ill.
H. L. Spaulding, Man. (Det. Shops). Detroit, Mich.
E. A. Benson, Supt. Shops... ... St. Louis, Mo.

Q

Quebec Central Ry. 4-8½ g. 156 m. 10 lo. 267 cars.
J. R. Woodward, Gen. Man.. Sherbrooke, P. Q.
A. Steele, Supt .... Sherbrooke, Que.
R. D. Morkill, Jr., Pur. Agt.. Sherbrooke, P. Q.
Jas. Seiveright, M. M. ...... Sherbrooke, P. Q.
Quebec, Montreal, Ottawa & Occidental Ry.
4-8½ g. 354 m. 36 lo. 993 cars.
L. A. Senecal, Gen. Supt........Quebec, Que.
Quebec & Lake St. John Ry. 4-8½ g. 36 m. 3 lo. 55 c.
J. G. Scott, Manager..........Quebec, Can.
Frank Fournier, Supt... ...St. Raymond, P. Q.
John T. Eames, M. M.. ....St. Raymond, P. Q.
Queen Anne's & Kent and Townsend Branch R. R. (See Penna.; (4) Div.)

R

Raleigh & Augusta Air-Line: Carolina Central Raleigh & Gaston R. Rs. 4-8½ g. 446 m. 52 lo. 1,052 c.
John C. Winder, Gen. Man. & P. A. Raleigh, N. C.
Raleigh Rds. 4-8½ g. 200 m. 27 lo. 638 cars.
B. R. Harding, Supt. of Mach. Raleigh, N. C.
Carolina Cen. R.R. 4-8½ g. 242 m. 26 lo. 431 c.
L. C. Jones, Supt........Wilmington, N. C.
James Maglenn, M. of Mach. Laurinburg, N. C.
S. R. Ethridge, M. C. B ...Laurinburg, N. C.
Rensselaer & Saratoga R.R. (See Del. & Hud. Can. Co.)
Rhinebeck & Connecticut. (See Hart. & Ct. Wn.)
Richmond, Fredericksburg & Potomac R. R.
4-9 g. 81 m. 15 lo. 149 cars.
E. T. D. Myers, Gen. Supt .. Richmond, Va.
T. L. Courtney, Asst. Supt ..Richmond, Va.
H. Kuhn, M. M. ....Richmond, Va.
W. H. Trainham, M. C. B. ...Richmond, Va.
Rich., York River & Ches. R. R. (See Rich. & Dan.)
Richmond & Alleghany R.R. 4-9 g. 261 m. 19 lo. 837c.
Decatur Axtell, Rec. & Gen. Man. Richmond, Va.
M. Sweeney, Pur. Agt.. ....Richmond, Va.
Geo. D. Harris, M. M. & C. B...Richmond, Va.
Richmond & Danville R. R. Co.'s Roads.
1,736 miles 218 loco. 3,833 cars.
A. L. Rives, Gen. Man ....Richmond, Va.
Peyton Randolph, As. G. Man.. Richmond, Va.
J. P. Minetree, Pur. Agt........ Richmond, Va.
R. D. Wade, Supt. Mo. Po.... ...Richmond, Va.
(1) Rich. & Dan. R. R. 5 g. 847 m. 131 lo. 2,687 cars.
Rich. & Dan. Div.: 5 g. 320 m. 80 lo. 1,797 c.
Wm. H. Green, Supt...... ....Richmond, Va.
M. M. ....Richmond, Va.
J. B. Vaughan, For. Car Sh... Richmond, Va.
North Carolina Div. 5 g. 223 m. 22 lo. 268 cars.
A. B. Andrews, Supt.... ......Raleigh, N. C.
W. H. Turrentine, M. M. Comp'y's Shops, N. C.
J. C. Holt, For. Car Sh. Comp'y's Shop, N. C.
Atlanta & Char. Air Line. 5 g. 286m. 31 lo. 415 c.
Narrow-Gauge Branches. 3 g. 80 m. 5 lo. 41 c.
Edmund Berkley, Supt..... ....Atlanta, Ga.
T. W. Gentry, M. M. ... .Atlanta, Ga.
Z. T. Smith, For. Car Sh.... ... Atlanta, Ga.
(2) Charlotte, Col. & Aug. R. R. 5g. 239 m. 22 lo. 287 c.
G. R. Talcott, Supt.........Columbia, S. C.
J. H. Green, M. M. (2 roads)...Columbia, S. C.
(3) Columbia & Greenville R. R. 5 g. 297 m. 22 l. 224 c.
G. S. Talcott, Supt..........Columbia, S. C.
J. O. Meredith, For. E. & C. Rep.. do.
(4) Virginia Midland Ry. 4-8½ g. 353 m. 41 lo. 631 c.
Supt. Alexandria, Va.
J. E. Waddey, M. of M......Alexandria, Va.
J. T. Nalls, M. C. B. ......Alexandria, Va.
Richmond & Petersburg R.R. 4-8½ g. 25 m. 8 lo. 132 c.
J. R. Kenly, Supt.....Richmond, Va.
John O'Brien, M. M. ....Richmond, Va.
Rio Grande R. R. 3-6 g. 22 m. 3 lo. 40 cars.
M. J. Gomila, Rec. & Gen. Man Brownsville, Tex.
G. W. Rendall, M. M. Brownsville, Tex.
M. Markwood, M. C. B... ...Brownsville, Tex.
Rio Grande & Pecos Ry. 4-8½ g. 27 m. In progress.
W. W. Hungerford, Man ....Laredo, Tex.
Rochester & Lake Ontario Ry. 4-8½ g. 6 m. 2 lo. 10 c.
N. B. Ellison, Man ......Rochester, N. Y.
Rochester & Pittsb'g R.R. 4-8½ g. 260 m. 60 lo. 3,206 c.
Geo. E. Merchant, Gen. Man...Rochester, N. Y.
J. T. Gardiner, Gen. Supt.....Buffalo, N. Y.
C. W. Mills, Supt. M. P........Rochester, N. Y.
Rock Island & Mercer County R. R., and
Rock I'd & Peoria Ry. 4-8½ g. 113 m. 13 lo. 357 c.
R. R. Cable, V.-P. & Gen. Supt.....Chicago, Ill.
R. I. & P. Ry.:
H. B. Sudlow, Supt. & P. A....Rock Island, Ill.
Joseph Elder, M. M. ....Peoria, Ill.
R. I. & M. C. Rd.: H. B. Sudlow, Supt. R'k Island, Ill.
J. H. Parks, M. M. .... .Rock Island, Ill.
Rogersville & Jefferson R. R. 5 g. 16 m. 1 lo. 6 cars.
C. M. Leuty, Supt......... Rogersville, Tenn.
Rome (Ga.) R. R. 5 g. 20 m. 2 lo. 17 cars.
Eben Hillyer, Pres. & Supt........ Rome, Ga.
O. W. Harbin, M. M.... .... Rome, Ga.
Rome, Watertown & Ogdensburg R. R.
4-8½ g. 418 m. 61 lo. 1,831 cars.
H. M. Britton, Gen. Man. & P. A. Oswego, N. Y.
Geo. H. Haselton, S. M. P. & M. Oswego, N. Y.
E'n Div.: J. D. Remington, A. Supt. Watertown, N.Y.
W'n Div.: W. H. Chauncey, A. Supt. Oswego, N. Y.
Roodhouse & Scottsville Ry. In progress.
Geo. P. Merrill, Gen. Man..........Chicago, Ill.
Ruby Hill R. R. (See Eureka & Pal.)
Rumford Falls & Buckfield R.R. 4-8½ g. 29 m. 2 l. 62 c.
L. L. Lincoln, Supt. & Pur. Agt...Canton, Me.

S

Sabine & East Texas Ry. (See Cen. Pac.)
Sacramento & Placerville R. R. (See Cen. Pac.)
Saginaw Bay & Northw'n R.R. 4-8½ g. 31 m. 6 lo. 136 c.
J. Jackson, Gen. Man.... ...Pinconning, Mich.
F. T. Lillote, Act. Pur. Agt...Pinconning, Mich.
Edward Keeler, M. M. ....Pinconning, Mich.
Saginaw, Tuscola & Huron R. R.
3 g. 50 m. 5 lo. 85 cars.
M. B. Wilkinson, Gen. Supt.. E. Saginaw, Mich.
Saginaw Valley & St. Louis R. R. 4-8½g. 39 m. 4 l. 64 c.
T. M. Fish, Gen. Supt..... ....Ionia, Mich.
N. W. Merrill, Div. Supt........Saginaw, Mich.
Allan Bourn, Pur. Agt.. ... .Detroit, Mich.
Geo. C. Watrous, M. M. ....Ionia, Mich.
Salt Lake & Western R. R. (See Un. Pac.; (6) Div.)
San Francisco & No. Pac. 4-8½ g. 139 m. 11 lo. 245 c.
Arthur Hughes, Gen. Man.. San Francisco, Cal.
H. C. Whiting, Supt......... ...San Safael, Cal.
Ed. Reynolds, Gen. M. M. ....Donahue, Cal.
Ed. Reynolds, M. C. B..........Donahue, Cal.
Sanborn, Cooperstown & Turtle M. R. R. In progress.
C. A. Roberts, Gen. Man. .. .. Sanborn, Dak.
Sandy River R. R. 2 g. 18 m. 3 lo. 36 cars.
N. B. Beal, Pres. & Supt ....Phillips, Me.
M. Saunders, M. M. & C. B...... ..Phillips, Me.
Sandusky, Mansfield & Newark R. R. (See B. & O.)
Sanford & Indian River R. R. (See So. Flor.)
San Luis Obispo & Santa Maria R. R.
3 g. 20 m. 2 lo. 30 cars.
Charles Goodall, Man......San Francisco, Cal.
San Pete Valley R. R. 3 g. 33 m. 2 lo. 57 cars.
S. Bamberger, Man...... Salt Lake City, U. T.
J. E. Bamberger, Pur. Agt.... Salt Lake, U. T.
B. Bates, M. M. .... Morvin, U. T.
Santa Cruz R. R. (See So. Pac.; Nor'n Div.)
Saratoga, Mt. McGregor & Lake George R. R.
3 g. 11 m. 3 lo. 12 cars.
John McGee, Supt. ....Saratoga Springs, N. Y.
Savannah, Florida & W'n Ry. 5 g. 519 m. 62 lo. 1,063 c.
H. S. Haines, Gen. Man........Savannah, Ga.
R. G. Fleming, Supt...... ....Savannah, Ga.
A. A. Aveilhé, Pur. Agt..........Savannah, Ga.
G. M. D. Riley, M. of Mach......Savannah, Ga.
E. Geffcken, For. Car Dept.....Savannah, Ga.
Sav., Griffin & No. Ala. R. R. Op. by Central (Ga.).
Schuylkill & Lehigh R. R. (See Phil. & Read.)
Schoharie Valley R. R. (See Middleburg & Sch.)
Scioto Valley R. R. 4-8¾ g. 132 m. 19 lo. 548 cars.
Geo. Skinner, Supt. & P. Agt.....Columbus, O.
R. Bromley, M. M. ....Portsmouth, O.
Seaboard & Roanoke R. R. 4-8½ g. 80 m. 21 lo. 384 c.
Mast. of Trans....Portsmouth, Va.
J. A. Walton, Pur. Agt........Portsmouth, Va.
M. M. Pendleton, S. M. P. & M. Portsmouth, Va.
Sedalia, Warsaw & Southern Ry. (See Mo. Pac.)
Sharpsville R. R. 4-8½ g. 23 m. 3 lo. 13 cars.
Thos. M. King, V. P. & Gen. Man. Pittsburgh, Pa.
W. C. Agnew, Asst. Gen. Man.. Youngstown, O.
Shelby Iron Co. R. R. {5-9 g. 7 m. 2 lo. / 3-6 g. 12 m. 3 lo.} 50 c.
J. A. McArthur, G. Man.. Shelby Ir. Wks, Ala.
R. H. Stoughton, Supt.. Shelby Iron Wks., Ala.
J. H. Burgbardt, M. M. . Shelby Iron Wks, Ala.
Shell Beach R. R. 5 g. 22 m.
M. R. Spelman, Supt..... .... New Orleans, La.
Shenandoah Valley R. R. 4-9 g. 249 m. 32 lo. 849 c.
Norfolk & Western R. R. 5 g. 486 m. 82 lo. 1,779 c.
J. H. Sands, Gen. Supt .... .Roanoke, Va.
W. C. De Armond, Pur. Agt. ..Philadelphia, Pa.
Supt. of M. P...Roanoke, Va.
W. A. Morgan, M. C. B ....Lynchburg, Va.
Sh. Val. Rd.: D. W. Flickwir, Supt., Roanoke, Va.
N. & W.; W. Div.: Frank Huger, Supt.; and
N. & W.; E. Div.: N. M. Osborne, Supt.; and
J. T. Robinett, M. M. . .. Petersburg, Va.
Shenango & Allegheny R.R. 4-8½ g. 74 m. 8 lo. 248 c.
J. T. Blair, G. Man. & Pur. Agt. Greenville, Pa.
Edw. Richardson, M. M. & C. B. Greenville, Pa.
Shepaug R. R. 4-8½ g. 38 m. 3 lo. 28 cars.
Edwin McNeill, Supt............Litchfield, Ct.
A. J. Broughet, M. M. .... Litchfield, Ct.
Ship Is., Ripley & Ky. R. R. 3 g. 25 m. 2 lo. 23 cars.
C. L. Harris, Supt. & Pur. Agt.... Ripley, Miss.
W. H. Phelps, M. M. ....Ripley, Miss.
Silver City, Deming & Pacific R. R. 3 g. 47 m. 3 l. 141 c.
John W. Smith, Gen. Supt....Silver City, N. M.
Silver Lake Ry 4-8½ g. 6 m. 1 lo. 4 cars.
C. W. S. Nobles, Supt ....Perry, N. Y.
Sinaloa & Durango R. R. 4-8½ g. 39 m. 2 lo. 40 cars.
Geo. S. Skilton, Gen. S. Culiacan, Sinaloa, Mex.
John E. Bell, M. M. ....Culiacan, Mex.
Skaneateles R. R. 4-8½ g. 5 m. 2 lo. 5 cars.
J. McNamara, Supt..........Skaneateles, N. Y.
Sioux City & Pacific R. R. 4-8½ g. 427 m. 31 lo. 893 c.
W. P. Linsley, Gen. Man..... Missouri Valley, Ia.
C. M. Lawler, Gen. Supt....Missouri Valley, Ia.
R. W. Hamer, Pur. Agt.. ....Chicago, Ill.
W. G. Brownson, Asst. Supt.... .Norfolk, Neb.
S. A. Teal, M. M. ....Missouri Valley, Ia.
W. H. Ramseyer, M. C. B. ..Missouri Valley, Ia.
Smyrna & Delaware Bay R. R. (See Kent County.
Sodus Bay Ry. (See Northern Central.
Somerset R. R. 4-8½ g. 25 m. 3 lo. 24 cars.
W. M. Ayer, Supt. & Pur. Agt......Oakland, Me.
S. P. Mosher, For. Car Rep.... .Oakland, Me.
C. Crowell, For. Lo. Rep's.....No. Anson, Me.
Somerset & Cambria R. R. (See B. & O.)
Sonora Ry. (See A., T. & S. Fe.)
Sonoma Valley:
Arthur Hughes, Gen. Man. San Francisco, Cal.
H. C. Whiting, Supt ....San Rafael, Cal.
J. T. Peters, Asst. Supt.......Glen Ellen, Cal.
Ed. Reynolds, M. M. ... . Donahue, Cal.
South & North Alabama R. R. (See Louis. & Nash.)
South Carolina Ry. 5 g. 246 m. 46 lo. 834 cars.
John B. Peck, Gen. Man. ......Charleston, S. C.
S. B. Pickens, Pur. Agt ....Charleston, S. C.
P. J. Cochrane, Mast. of Mach. Charleston, S. C.
Geo. H. Gramling, M. C. B....Charleston, S. C.
South-Eastern Ry. 4-8½ g. 280 m. 30 lo. 1,000 cars.
T. A. McKinnon, Gen. Man.... .Montreal, Can.
A. G. Eastman, M. M. ....Farnham, P. Q.
South Florida R. R. 3 gauge 115 m. 13 lo. 250 cars.
B. R. Swoope, Supt. & P. A........Sanford, Fla.
R. De by, M. M. ....Sanford, Fla.
A. D. Stentiford, M. C. B..........Sanford, Fla.
South Mountain R. R. 4-8½ g. 18 m. 4 lo. 22 c.
W. H. Woodward, Supt. Pine G've Furnace, Pa.
South Pacific Coast R. R. 3 g. 81 m. 16 lo. 500 cars.
L. Fillmore, Gen. Supt. ....San Francisco, Cal.
W. H. Masterman, M. M. & C. B.. Newark, Cal.
South-Western R. R. (Ga.) (See Central of Ga.)
South-Western Ry. (Ky.) 4-8½ g. 5 m. 1 lo. 28 cars.
M. Tabler, Supt. & Man......Harrodsburg, Ky.
J. C. Hool, Pur. Agt ....Harrodsburg, Ky.
Southern Central R. R. 4-8½ g. 156 m. 21 lo. 467 c.
H. D. Titus, Gen. Supt. & P. A.....Auburn, N. Y.
John White, M. M. ... .Auburn, N. Y.
H. Mooney, M. C. B..............Auburn, N. Y.
Southern Kansas Ry. (See At., Top. & Santa Fe.)
Southern Maryland R. R. 4-8½ g. 20 m. 1 lo. 20 c.
J. B. Ridgway, Supt.........Brandywine, Md.
C. R. Joyce, M. M. ....Brandywine, Md.
Southern Pacific R. R. 4-8½ g. 203 m. 335 lo. 780 c.
Northern Div. (For other Divs. see Cen. Pac.)

A. C. Bassett, *Supt*.......San Francisco, Cal
J. R. Watson, *Pur. Agt*.....Sacramento, Cal.
J. T. Wilson, *M. M*.......San Francisco, Cal.
F. N. Bellisle, *M. C. B*. ...San Francisco, Cal.
Southern Pacific R. R. of Arizona. (*See Cen. Pac.*)
Southern Pacific R. R. of New Mexico. (*See Cen. Pac.*)
Spartanburg, Union & Columbia R. R. (*See Rich. & Dan.*; (3) *Div.*
Spring Brook R. R. 4-3 g. 8 m. 1 lo. 18 cars.
Charles Pugh, *Pres*..........Pittston, Pa.
Spring Hill & Parrsboro Ry. (*See Cumberland.*)
Springfield, Effingham & So.-E'n Ry. (*See Ind. & Ill.*)
Springville & Sardinia Ry. 4-8½ g. 12 m. 1 lo. 8 c.
Bertrand Chaffee, *Pres*.......Springville, N. Y
St. Croix & Penobscot R. R. 4-8½ g. 22 m. 4 lo. 195 c.
S. W. Haycock, *Supt. & Pur. Agt*. .Calais, Me.
G. H. Corsen, *M. M*...............Milltown, Me
H. C. Tincker, *M. C. B*...........Milltown, Me
St. Helen, Houghton Lake & West. R. R. 4-8½ g. 13 m.
Z. C. Jessop, *Gen. Man*.........Detroit, Mich
St. John & Maine Ry. (*See New Brunswick.*)
St. John's Ry. 4-8½ g. 14½ m. 2 lo. 24 cars.
R. McLaughlin, *Pr. & Supt*. .Jacksonville, Fla.
J. M. Owens, *M. of Mach*....St. Augustine, Fla.
St. John's & Lake Eustis Ry. (*See Florida Southern.*)
St. Johnsb'ry & Lake Champ. 4-8½ g. 120 m 15 lo. 372 c.
A. B. Jewett, *Supt. & P. A*..St. Johnsbury, Vt
Geo. E. Howe, *M. M. & C. B*. St. Johnsbury, Vt
St. Joseph Valley R. R. 3 g. 15 m. 1 lo. 11 cars
E. T. Chase, *Gen. Man*..Berrien Springs, Mich
St. Joseph & Des Loge Ry. 3 g. 13 m. 4 lo. 70 cars
T. T. Onderdonk, *Supt*......Bonne Terre, Mo
St. Joseph & Western R. R. 4-8½ g. 252m. 21 lo. 175 cars.
L. D. Tuthill, *Gen. Supt. & P. A*. St. Joseph, Mo.
E. Sleepy, *M. M. & C. B*....St. Joseph, Mo.
St. Joseph & Des Moines R. R. (*See K. C., St. J. & C. B.*)
St. Lawrence & Ottawa Ry. (*See Can. Pac.*)
St. Louis, Alton & Terre Haute R. R.
Main Line. (*See C., C., C. & I.; Ind. & St. L. Div.*
St. Louis & Cairo Div.: 4-8½ g 137 m. 19 lo. 800 c
G. W. Parker, *Gen. Man*.......St. Louis, Mo
J. L. Hinckley, *Supt*..........Belleville, Ill
R. M. Pringle, *M. M*..........E. St. Louis, Ill.
St. Louis Bridge Co. and Tunnel R. R. 4-8½ g. 31 m. 22 lo. 11 cars.
Wm. Taussig, *Gen. Man*..........St. Louis, Mo
A. W. Dickinson, *Supt*............St. Louis, Mo.
J. E. Williams, Jr., *Pur. Agt*....St. Louis, Mo
H. M. Smith, *M. M*...............St. Louis, Mo
St. Louis, C. Cœur & St. Ch. Ry. 3 g. 16 m.
F. M. Colburn, *Gen. Man*.........St. Louis, Mo.
St. Louis Coal R. R. 4-8½ g. 93 m. 10 lo. 217 cars.
Robt. Meek, *Supt*................Carbondale, Ill.
Jas. C. Bryden, *Pur. Agt*.........St. Louis, Mo.
St. Louis, Des Moines & Northern Ry. 4-8½ g. 43 m
C. F. Merk, *Supt*..............Des Moines, Ia.
St. L., Ft. Scott & Wichita R. R. 4-8½ g. 214 m. 6 l. 337 c.
J. W. Miller, *V. P. & Gen. Man*..Fort Scott, Kan.
Tho. N. Lewis, *Asst. Supt*......Fort Scott, Kan.
Henry Berger, *M. M*.............Ft. Scott, Kan.
St. L., Hannibal & Keokuk. 4-8½ g. 85 m. 5 lo. 70 c.
E. C. Case, *Rec. & Man*........ Hannibal, Mo.
E. W. Hoisington, *M. M*.........Hannibal, Mo.
St. Louis, Iron Mt. & So'n Ry. (*See Mo. Pac.*; (4) *Div.*)
St. L., Keokuk & No.-W'n. Ry. (*See C., B. & Q.*)
St. L., Salem & Little Rock. 4-9 g. 72 m. 5 lo. 111 c.
H. A. Crawford, *V. Pr. & P. A*...St. Louis, Mo.
E. B. Sankey, *Supt*...................Salem, Mo.
Thomas Everson, *M. M*. ....Steelville, Mo
J. W. Houston, *M. C. B*...........Steelville, Mo.
St. Louis & Cairo R. R. 3 g. 152 m. 22 lo. 896 cars.
Chas. Hamilton, *Gen. Supt*.......St. Louis, Mo.
T. W. Newell, *M. M*...........E. St. Louis, Mo.
St. L. & San Fran. Ry. 4-8½ g. 943 m. 103 lo. 3,737 c.
C. W. Rogers, *V. P. & Gen. Man*..St. Louis, Mo.
D. H. Nichols, *Supt. Tran*..No. Springfield, Mo.
A. P. Mann, Jr., *Pur. Agt*.........St. Louis, Mo
M. Kearney, *M. M. & C. B*..No. Springfield, Mo.
East Div.: A. Veech, *Supt*...........St. Louis, Mo
Central Div.: W. A. Thoms, *Supt*..Springfield, Mo.
Kan. Div.: J. R. Wentworth, *Supt*. Neodesha, Kan.
St. Martin's & Upham Ry. 4-8½ g. 30 m. 2 lo. 8 cars.
A. E. Killam, *Manager*.........St. Martin's, N. B.
St. Paul Eastern Grand Trunk Ry. 4-8½ g. 15 m.
D. C. Lamb, *Gen. Supt*...........Oconto, Wis.
St. Paul, Minneapolis & Manitoba Ry. 4-8½ g. 1,402 m. 201 lo. 5,068 cars.
A. Manvel, *Gen. Man*............St. Paul, Minn.
H. C. Ives, *Asst. Gen. Man*.. .. St. Paul, Minn.
E. B. Wakeman, *Asst. Gen. Supt*. St. Paul, Minn.
J. C. Morrison, *Pur. Agt*.........St. Paul, Minn.
Thos. Downing, *M. M. & C. B*..St. Paul, Minn.
Breck. Div.: W. S. Kemp, *Supt*...St. Paul, Minn.
F. F. Div.: J. B. Rice, *Supt*........St. Paul, Minn.
No'n Div.: A. Guthrie, *Supt*.....Crookston, Minn.
St. Paul & Duluth R. R. 4-8½ g. 225 m. 37 lo. 1,080 c.
W. H. Fisher, *Gen. Supt*...........St. Paul, Minn.
J. G. Callahan, *Pur. Agt*.........St. Paul, Minn.
Chas. F. Ward, *M. M. & M. C. B*..St. Paul, Minn.
State Line & Sullivan R. R. 8½ g. 25 m. 3 lo. 263 c.
I. O. Blight, *Supt*...................Towanda, Pa.
Staten Island R. R. ½ g. 13 m. 4 lo. 18 c
J. W. Wilbur, *Supt*.............New York, N. Y
Stony Clove & Catskill Mountain R. R. 3 g. 14 m. 2 lo. 22 cars.
Geo. Coykendall, *Gen. Supt*....Rondout, N. Y
Stony Creek R. R. 4-8½ g. 103 m.
Geo. B. Boggs, *Supt* ....Norristown, Pa.
Sterling Mountain Ry. 6 g. 8 m. 2 lo. 145 cars.
J. C. Missimer, *Supt*.........Sloatsburg, N. Y
Suffolk Lumber R. R. 3 g. 15 m. 3 lo. 41 cars.
W. M. Whaley, *Supt*..................Suffolk, Va.
Summit Branch R. R. 4-9 g. 20 m. 7 lo. 10 cars.
Thomas Gucker, *Supt* ....Williamsport, Pa.
Susquehanna & Delaware River R. R. In progress.
D. Y. Kilgore, *Pres*...........Philadelphia, Pa.
Sussex R. R. (*See Del., Lack. & West.*)
Syracuse, Binghamton & N. Y. R. R. (*See D. L. & W.*)
Syr., Ontario & N. Y. R. R.
Albert Allen, *Supt* ....New York, N. Y
Syracuse, Geneva & Corning; Corning, Cowanasque & Antrim R. Rs. 4-8½ g. 142 m. 28 lo. 1,044 c.
A. H. Gorton, *Supt*...........Corning, N. Y.
W. E. Gorton, *Asst. Supt*.........Corning, N. Y.
W. H. Chapne, *Pur. Agt*.......Corning, N. Y.
O. C. Patchell, *M. M*...............Corning, N. Y.
C. J. Butler, *M. C. B*.............Corning, N. Y.

T

Tennessee Coal R. R. 5 g. 28 m. 8 lo. 204 cars.
A. M. Shook, *Gen. Man*......Tracy City, Tenn.
W. A. Knight, *M. M*......... Tracy City, Tenn.
Tennessee & Sequatchee Valley R. R. 3 g. 42 m. 1 lo. 24 cars.
Chas. Clinton, *Gen. Supt*....Spring City, Tenn.
P. V. Mooney, *Pur. Agt*......Spring City, Tenn.
Terre Haute & Indianapolis R. R. 4-9 g. 421 m. 105 lo. 4,318 cars.
Joseph Hill, *Gen. Supt*.........St. Louis, Mo.
C. R. Peddle, *P. Agt*........Terre Haute, Ind.
Geo. H. Prescott, *S. M. P. & M*. Terre Haute, Ind.
F. C. Cleaver, *M. M* ....Terre Haute, Ind
E. D. Carter, *M. C. B* ......Terre Haute, Ind.
Chas. Butler, *M. M*..............Effingham, Ill.
Clinton Idler, *Foreman* ... Indianapolis, Ind.
Terre Haute & So.-Eastern Ry. 4-9 g. 44 m. 2 lo. 145 c.
Geo. Atherton, *Supt*......... Terre Haute, Ind.
Texas-Mexican Ry. (*See Mex. Nat.*
Texas Trunk R. R. 4-8½ g. 36 m. 2 lo. 8 cars.
Hugh Irwin, *Gen. Supt*...............Dallas, Tex.
Texas Western Ry. 3 g. 52 m. 2 lo. 44 cars.
Henry Hatch, *Gen. Man*...........Houston, Tex.
T. F. Glispin, *M. M*................Houston, Tex.
Texas & N. O. R. R. (*See Cen. Pac.; G. H. & S. A. Div.*)
Texas & Pacific. (*See Mo. Pac. Ry.*; (6) *Div.*)
Texas & St. Louis Ry. 3 g. 769 m. 84 lo. 2,000 cars.
W. R. Woodard, *Rec. and Gen. Man*. St. Louis, Mo.
J. J. Frey, *Gen. Supt*..........Pine Bluff, Ark.
C. S. Brooke, *Pur. Agt*..........St. Louis, Mo.
M. B. Jones, *M. C. B*..........Pine Bluff, Ark.
Mo. & Ark. Div.:
W. H. Adams, *Supt*..........Pine Bluff, Ark.
Rich. Williams, *M. M*....... Pine Bluff, Ark.
Tex. Div.: H. Flanders, *Supt*...........Tyler, Tex
P. J. Milan, *Gen. M. M*..........Pine Bluff, Ark
Tionesta Valley R. R. 3 g. 15 m.
George Dickinson, *Gen. Supt* .... Sheffield, Pa
Tioga R. R. 4-8½ and 6 g. 67 m. 18 lo. 960 cars.
L. H. Shattuck, *Supt*............Blossburg, Pa.
J. C. Guthrie, *Pur. Agt*.......New York, N. Y.
Pero Bonny, *M. M*................Blossburg, Pa.
D. H. Stratton, *M. C. B*.........Blossburg, Pa.
Toledo, Ann Ar. & No. Mich. Ry. 4-8½ g. 63 m. 9 lo. 186 c.
J. M. Ashley, *Gen. Man*......Ann Arbor, Mich.
H. W. Ashley, *Supt. & Pur. Agt*. do
C. C. Dodge, *M. M*.............Ann Arbor, Mich.
Toledo, Cin. & St. Louis R. R. 3 g. 798 m. 101 lo. 3,500 c.
E. P. Murray, *Gen. Supt*.............Toledo, O.
F. W. Stewart, *P. Agt*................Toledo, O.
Thos. Robertson, *M. M*...............Delphos, O.
Toledo Div.: W. H. Vandergrift, *Supt*.; do
J. S. Wiers, *For. Car Rep*.........Delphos, O.
St. Louis Div.: Frank F. Allen....Charleston, Ill.
P. H. Murphy, *M. M*.......... Charleston, Ill.
Toledo & Indianapolis R. R. 4-8½ g. 43 m. 4 lo. 118 c.
David Robison, Jr., *Rec*...............Toledo, O.
Toledo & South Haven R. R. (*See Paw Paw.*)
Tonawanda Val. & Cuba R. R. (*See Brad., B. & K.*)
Toronto, Grey & Bruce Ry. (*See Canadian Pacific.*)
Toronto & Nipissing Ry. (*See Mid. Ry. of Can.*)
Troy & Boston R. R. 4-8½ g. 48 m. 20 lo. 484 cars.
D. Robinson, *Pres*....................Troy, N. Y.
Joseph Crandell, *Supt*. .... Troy, N. Y.
C. H. Hubbell, *Pur. Agt*............Troy, N. Y.
Z. B. Davis, *M. M* ....Troy, N. Y.
A. Brewer, *M. C. B*...................Troy, N. Y.
Troy & Greenfield R. R. & H. Tunnel. 4-8½ g. 44 m.
A. W. Locke, *Man*.........North Adams, Mass.
Tuckerton R. R. 4-9 g. 31 m. 2 lo. 29 cars
J. J. Pharo, *Supt. & Pur. Agt*. Tuckerton, N. J.

U

Ulster & Delaware R. R. 4-8½ g. 74 m. 10 lo. 218 cars.
Jas. H. Jones, *Supt*..............Rondout, N. Y.
John H. Decker, *M. C. B*........Rondout, N. Y.
Union Ry. 5 g. 9 m. 3 lo.
C. E. James, *Pres*....... Chattanooga, Tenn.
D. J. O'Connell, *Gen. Man*. Chattanooga, Tenn.
Union Pacific Ry. (7 Gen. Divs.) 3 & 4-8½ g. 4,633 m 510 lo. 10,550 cars.
S. R. Callaway, *Gen. Man*........Omaha, Neb.
S. T. Smith, *Gen. Supt* ....Omaha, Neb.
Thos. L. Kimball, *Asst. Gen Man*. Omaha, Neb.
Pur. Agt...............Omaha, Neb.
I. H. Congdon, *S. M. P. & C. D*...Omaha, Neb.
John Wilson, *Asst. do*..............Omaha, Neb.
(1) Neb. Div.: O. H. Dorrance, *Gen. Supt*. Omaha, Neb.
E. Div.: C. B. Havens, *Supt*..........Omaha, Neb.
M. M............ Omaha, Neb.
A. M. Collett, *M. C. B*............Omaha, Neb.
L. Pole Div.: W. A. Deuel, *Supt*..Cheyenne, W. T
J. H. McConnell, *M. M*.........N. Platte, Neb.
(2) Wy. Div.: E. Dickenson, *Gen. Supt*..Laramie, W. T.
T. A. Davis, *M. M*...............Laramie, W. T.
Wes. Div.: C. E. Wurtelle, *Supt*. Evanston, W. T.
Geo. F. Chapman, *M. M*......Evanston, W. T.
(3) Idaho Div.: R. Blickenderfer, *Gen. Supt*. Ogden, U.
F. Rearden, *M. M*.............. Shoshone, Id.
Ogden Short Line Div.:
R. Blickensderfer, *Supt*...... .. Pocatello, Id.
Utah & Northern Div.:
J. S. Hickey, *M. M*...........Eagle Rock, Id.
J. W. Paul, *Gen. For. C. D*..Eagle Rock, Id.
(4) Col. Cent. Div.: A. A. Egbert, *Gen. Supt*. Denver, Col.
F. Meirtsheimer, *M. M*..........Denver, Col.
C. C. Div.: P. Touhy, *Supt*..........Denver, Col.
So. Park Div.: J. T. Choate, *A. Supt*..Como, Col.
(5) Kan. Div.: H. O. Brinkerhoff, *G. Supt*. Kan. City, Mo.
K. Pac. Div.: J. O. Brinkerhoff, *Supt*. Kan. C'y, Mo.
J. O. Chapman, *M. M*. .... Armstrong, Kan.
T. B. Roberts, *M. C. B*......Armstrong, Kan.
Kansas Central Div.:
J. O. Brinkerhoff, *Supt*..Leavenworth, Kan.
Smoky Hill Div.:
O. H. Dorance, *Supt*...........Wallace, Kan.
J. B. Dailey, *M. M*. ....Ellis, Kan.
(6) Salt Lake & Western Div.:
W. W. Ritter, *Supt*......Salt Lake City, Utah.
(7) Nevada Central Ry. 3 g. 93 m. 4 lo. 78 cars.
Jos. K. Choate, *Gen. Supt. & P. A*. Battle Mt., Nev.
United States Rolling Stock Co. 19 lo. 4,692 cars.
A. Hegewisch, *Pres*............New York, N. Y.
W. H. Chaddock, *Gen. Agt*........Chicago, Ill.
Upson County R. R. (*See Central of Ga.*)
Utah Central Ry. 4-8½ g. 280 m. 21 lo. 358 cars.
John Sharp, *Gen. Supt*...Salt Lake City, Utah.
S. H. Hill, *Pur. Agt*.... Salt Lake City, Utah.
Geo. G. Bywater, *M. M*..Salt Lake City, Utah
Peter Reid, *M. C. B*.......Salt Lake City, Utah.
Utah & Nevada Ry. 3 g. 37 m. 3 lo. 33 cars
W. W. Ritter, *Gen. Man*...Salt Lake City, Utah.
Robert Anderson, *M. M*...Salt Lake City, Utah.
Utah & Northern Ry. (*See Union Pac.*; (3) *Div.*)
Utah & Pleasant Valley Ry. (*See Den. & Rio. Gr.*)
Utica, & Black Riv. R. R. 4-8½ g. 180 m. 25 lo. 412 c.
E. A. Van Horne, *Gen. Supt. & P. A*..Utica, N. Y.
H. W. Hammond, *Asst. Supt*.......Utica, N. Y.
John Bailey, *M. M*.................Utica, N. Y.
David James, *M. C. B*............Utica, N. Y.

V

Vaca Vall. & Clear Lake R. R 4-8½ g. 30 m. 2 lo. 19 c.
G. B. Stevenson, *Gen. Supt*... .Vacaville, Cal.
Valley Ry. (Ohio) 4-8¾ g. 85 m. 21 lo. 889 cars.
Isaac Reynolds, *Gen. Man*........Cleveland, O.
Supt.......................Cleveland, O.
H. Melcher, *Pur. Agt*............Cleveland, O.
C. T. Johns, *M. M*................Cleveland, O.
Valley R. R. Va. 4-8½ g. 62 m
S. Spencer, *Pres* ....Baltimore, Md.
Vermont Valley R. R. (*See Conn. River.*)
Vicksburg & Brunswick R. R. (*See Cen. of Ga.*)
Vicksburg & Meridian R. R. (*See Cin., N. O. & Tex. Pac.*)
Vicks. Shreveport & Pac. R. R. (*See C., N. O. & T. P.*)
Victoria Ry. (*See Midland Ry. of Can.*)
Virginia Midland Ry. (*See Rich. & Dan.*; (4) *Div.*)
Virginia & Truckee R. R. 4-8½ g. 52 m. 14 lo. 322 c.
Carson & Colorado R. R. 3 g. 294 m. 8 lo. 228 c.
H. M. Yerington, *Gen. Supt*..... Carson, Nev.
R. J. Laws, *A. Supt*. (C. & Col.) Hawthorne, Nev.
Hume Yerington, *Pur. Agt*........Carson, Nev.
I. N. Fording, *M. M*...............Carson, Nev.
M. M. Hyde, *M. C. B*.............. Carson, Nev.

W

Wabash, Chester & W'n R. R. (*See St. Louis Coal.*)
Wabash, St. Louis & Pacific Ry. (4 Gen. Divs.) 4-8½ g. 3,241 m. 598 lo. 17,230 cars.
Jas. F. Joy, *Pres*...................St. Louis, Mo.
A. L. Hopkins, *V. P*............ St. Louis, Mo.
A. A. Talmage, *Gen. Man*......St. Louis, Mo.
H. H. Wellman, *Pur. Agt*.........St. Louis, Mo.
Jacob Johann, *Supt. M. P. & M*. Springfield, Ill.
M. M. Martin, *Supt. Car Dept*..... Decatur, Ill.
(1) Eas'n Div.: G. W. Stevens, *Supt*........Peru, Ind.
J. B. Barnes, *M. M*.........Fort Wayne, Ind.
A. W. Quackenbush, *Asst. M. M*.. Peru, Ind.
Thos. Anderson, *M. C. B*..........Peru, Ind.
Cairo Div.: C. F. Lape, *M. M*....Mt. Carmel, Ill.
Rant'l Div.: B. F. Mathias, *Asst. Supt*. Rantoul, Ill.
C. W. Hollister, *Gen. For*........Rantoul, Ill.
(2) Middle Div.: E. N. Armstrong, *Supt*. Decatur, Ill.
Theo. Bergold, *M. M*..........Springfield, Ill.
B. B. Rose, *M. C. B*................Decatur, Ill.
G. A. Hurd, *Asst. Supt*. ....Decatur, Ill.
E. B. Hyde, *Asst. Supt*.......... Havana, Ill.
(3) Western Div.: R. G. Butler, *Supt*....Moberly, Mo
W. J. Brokaw, *M. M*..............Moberly, Mo.
C. S. Buck, *M. C. B*................Moberly, Mo.
John Long, *A. Supt. C. D*. ....Moberly, Mo.
D. Moin. Div.: C. F. Meek, *A. Supt*. Des Moines, Ia
Walden's Bridge R. R. 3 g. 23 m. 3 lo. 37 cars.
John G. Scott, *Gen Man*....Jenks P. O., Tenn.
Wallkill Valley.
J. E. Childs, *Gen. Supt* ....New York, N. Y.
Geo. H. Graves, *Supt*..........Kingston, N. Y
E. Minshull, *M. M*...........Middletown, N. Y.
I. W. Fowler, *Pur. Agt*......Middletown, N. Y.
Walla Walla & Columbia Riv. R. R. (*See Ore. Ry.*)
Walton R. R. 5 g. 10 m. 1 lo. 7 cars.
D. H. Walker, *Pres*...................Monroe, Ga.
Warren & Farnsworth Valley R. R. 3 g. 16 m. 3 lo. 39 cars.
A. D. Wood, *Gen. Man*............Warren, Pa.
Warwick Valley R. R. (*See Leh. & Hud. River.*)
Wasatch & Jordan Valley R. R. (*See Den. & Rio. Gr.*)
Washington, Ohio & West. R. R. 4-8½ g. 52 m. 5 lo. 87 c.
S. M. Brophy, *Supt*............ Alexandria, Va.
W. Mountjoy, *Act. For*.........Alexandria, Va.
John Harrison, *M. C. B*........Alexandria, Va.
Waynesburg & Washington Rd. 3 g. 29 m. 3 lo. 26 c.
C. E. Bower, *Supt*..............Waynesburg, Pa.
A. M. Kline, *M. C. B*..........Waynesburg, Pa.
Welland Ry. 4-8½ g. 25 m. 4 lo. 147 cars.
William Pay, *Supt*.........St. Catharines, Ont.
Jas. Taylor, *M. M*.........St. Catharines, Ont.
Wm. H. Pay, *M. C. B*......St. Catharines, Ont.
West Feliciana R. R. 4-8½ g. 27 m. 2 lo. 22 cars
J. B. McGehee, *Pr. & Gen. Supt*. Bayou Sara, La.
J. A. Tilton, *M. M. & C. B*.....Bayou Sara, La.
W. Va., Central & Pittsb'g Ry. 4-8½ g. 50 m. 4 lo. 119 c.
T. B. Davis, *Gen. Man*.......Piedmont, W. Va.
W. E. Porter, *Gen. Supt*......Piedmont, W. Va
Geo. W. Harrison, *Pur. Agt*...Piedmont, W. Va.
E. W. Lippencott, *M. M*.....Piedmont, W. Va.
West & East R. R. (*See Ill. Cen.: N. O. Div.*)
West Jersey R. R. (*See Penn. R. R.*; (3) *Div.*)
Western R. R. (of Ala.) 5 g. 85 m. 15 lo. 270 cars.
Atlanta & W. Point Rd. 5 g. 87 m. 14 lo. 240 c.
Cecil Gabbett, *Gen. Man. & Supt*...Mont., Ala.
C. D. Wall, *M. M. & C. B*. ...Montgomery, Ala
Western Counties' Ry. 4-8½ g. 67 m. 8 lo. 137 cars.
J. Brignell, *Supt*. ....Yarmouth, N. S.
Western Maryland R. R. 4-8½ g. 127 m. 28 lo. 610 c
J. M. Hood, *Pr. & Gen. Man*....Baltimore, Md.
R. J. Adair, *Pur. Agt*..............Baltimore, Md.
David Holtz, *Mast. of Mach*..Union Bridge, Md.
J. H. Nussear, *M. C. B*.......Union Bridge, Md.
Western No. Carolina R. R. 5 g. 210 m. 17 lo. 160 c.
V. E. McBee, *Supt*..............Salisbury, N. C.
Jos. P. Minetree, *Pur. Agt*.......Richmond, Va.
G. W. Gates, *M. M*.............Salisbury, N. C.
Western & Atlantic R. R. 5 g. 138 m. 58 lo. 952 c.
R. A. Anderson, *Gen. Supt*.........Atlanta, Ga.
A. B. Bostwick, *Asst. Supt*..... Atlanta, Ga.
Lamar Collier, *M. M*................Atlanta, Ga
Wm. Kinyon, *M. C. B*. ....Atlanta, Ga.
Wheeling, Pittsburg & Baltimore R. R..(*See B. & O.*)
Wheeling & Lake Erie R. R. 267 m. 37 lo. 1,922 c.
M. D. Woodford, *Rec. & Gen. Man*..Toledo, O.
O. P. Dunbar, *Gen. M. M*............Norwalk, O.
John Hillhouse, *Div. M. M*.........Norwalk, O.
Cleve. & Mar. Div.: P. Pease, *Rec. & Gen. Man*.
A. Galloway, *M. M*............Cambridge, O.
Whitby, Port Perry & Lindsay Ry. (*See Mid. of Can.*)
White Water R. R. (*See Ft. W., Cin. & Lou.*)
Whitefield & Jefferson R. R. (*See Bos., Con. & Mon.*)
Whitneyville & Machiasport R. R. 8 m. 2 lo. 48 c.
C. Sullivan, *G. M. & Pur. Agt*. Whitneyville, Me.
Wicomico & Pocomoke R. R. 4-8½ g. 30 m. 2 lo. 38 c.
L. Showell, *Pres*......................Berlin, Md.
Williamsport & North Branch R. R. 4-8½ g. 14 m. 2 lo. 4 cars.
B. G. Welch, *Man. & P. Agt*...Hughesville, Pa.
Williamstown & Del. River R. R. 4-8½ g. 27 m. 1 lo. 12 cars.
Samuel Garwood, *Supt* ...Williamstown, N. J
Wilmington, Columbia & Augusta R. R. (*See W. & W.*)
Wilmington & No'n R. R. 4-8¾ g. 85 m. 17 lo. 155 c.
A. G. McCausland, *Supt. & P. A*. Wilmington, Del
George Rommel, *M. M*........Wilmington, Del.
Alex. Maitland, *M. C. B*...... Wilmington, Del.
Wilmington & Weldon; Northeastern; S. C. Central; Cheraw & Darlington; Cheraw & Salisbury; and Wilmington, Columbia & Augusta R. Rs. 4-8½ g. 682 miles 104 locomotives 1,725 cars.
H. Walters, *Gen. Man*......... Baltimore, Md.
J. F. Divine, *Gen. Supt*.......Wilmington, N. C.
John Bisset, *M. M*...........Wilmington, N. C.
W. H. Day, *M. C. B*..............Florence, S. C.
J. H. Davis, *M. C. B.* (W. & W.). Wilmington, N. C.
Winifrede R. R. 4-9 g. 5 m. 1 lo. 65 cars.
Theodore Wright, *Pres*........Philadelphia, Pa.
Windsor & Annapolis Ry. 4-8½ g. 130 m. 10 lo. 160 c.
P. Innes, *Gen. Man*..............Kentville, N. S.
Wm. Yould, *M. M*................Kentville, N. S.
Wm. Grierson, *M. C. B*.........Kentville, N. S.
Wisconsin Central R. R. 4-8½ g. 480 m. 39 lo. 1,800 c
F. N. Finney, *Gen. Man*........Milwaukee, Wis.
E. K. Howes, *Pur. Agt*........Milwaukee, Wis.
W. A. Short, *M. M*.............Stevens Pt., Wis.
Mis. & E'n Divs.: A. A. Allen, *S*..Milwaukee, Wis.
Mid. & Nor. Div.:
A. A. Allen, *Supt*...........Stevens Point, Wis.
Wis. & Minn. & Chip. Falls & West.
G. T. Wiswell, *Supt*......Chippewa Falls, Wis.
Wisconsin, Iowa & Nebraska.
B. L. Harding, *Gen. Man*.......Des Moines, Ia.
G. C. McMichael, *Supt*.......Marshalltown, Ia.
M. C. Wheeler, *M. M*........Marshalltown, Ia.
Wisconsin & Michigan R. R. (*See Mil. & North'n.*)
Wisconsin & Minnesota R. R. (*See Wis. Cen.*)
Wood River Branch R. R. 4-8½ g. 6 m. 2 lo. 3 cars.
L. M. Barber, *Supt*...........Hope Valley, R. I.
Woodstock R. R. 4-8½ g. 14 m. 1 lo. 3 cars.
J. G. Porter, *Supt*................Woodstock, Vt.
Worcester, Nashua & Rochester R. R. 4-8½ g. 95 m. 20 lo. 523 cars.
C. S. Turner, *Pres. & G. Man*. Worcester, Mass.
G. W. Hurlburt, *Supt*.........Worcester, Mass.
John G. Brady, *M. M. & C. B*. Worcester, Mass
Worcester & Shrewsbury R. R. 3 g. 3 m. 3 lo. 9 c.
J. F. Bigelow, *Supt*............Worcester, Mass.
G. E. Hapgood, *Pur. Agt*....Worcester, Mass.
Chas. Cleveland, *M. M*.......Worcester, Mass.
Worcester & Somerset R. R. (*See N. Y., Phil. & Nor.*)

Y

York & Peach Bottom Ry. 3 g. 40 m. 5 lo. 100 c.
S. M. Manifold, *Supt. & Pur. Agt*.....York, Pa.
G. W. Hoover, *M. M*..................York, Pa.